

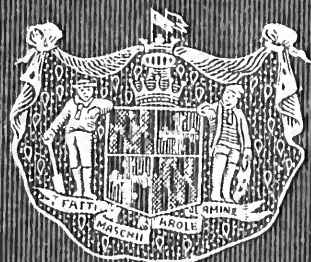
Maryland

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REPORT
OF THE
STATE ROADS COMMISSION
OF
MARYLAND



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1912-13

COMMISSION

1912-1914

GOVERNOR P. L. GOLDSBOROUGH

O. E. WELLER, *Chairman*

W. B. MILLER

IRA REMSEN

ANDREW RAMSAY

WM. BULLOCK CLARK

E. E. GOSLIN

1914-1915

GOVERNOR P. L. GOLDSBOROUGH

O. E. WELLER, *Chairman*

THOMAS PARRAN

W. B. MILLER

JOHN M. PERRY

ANDREW RAMSAY

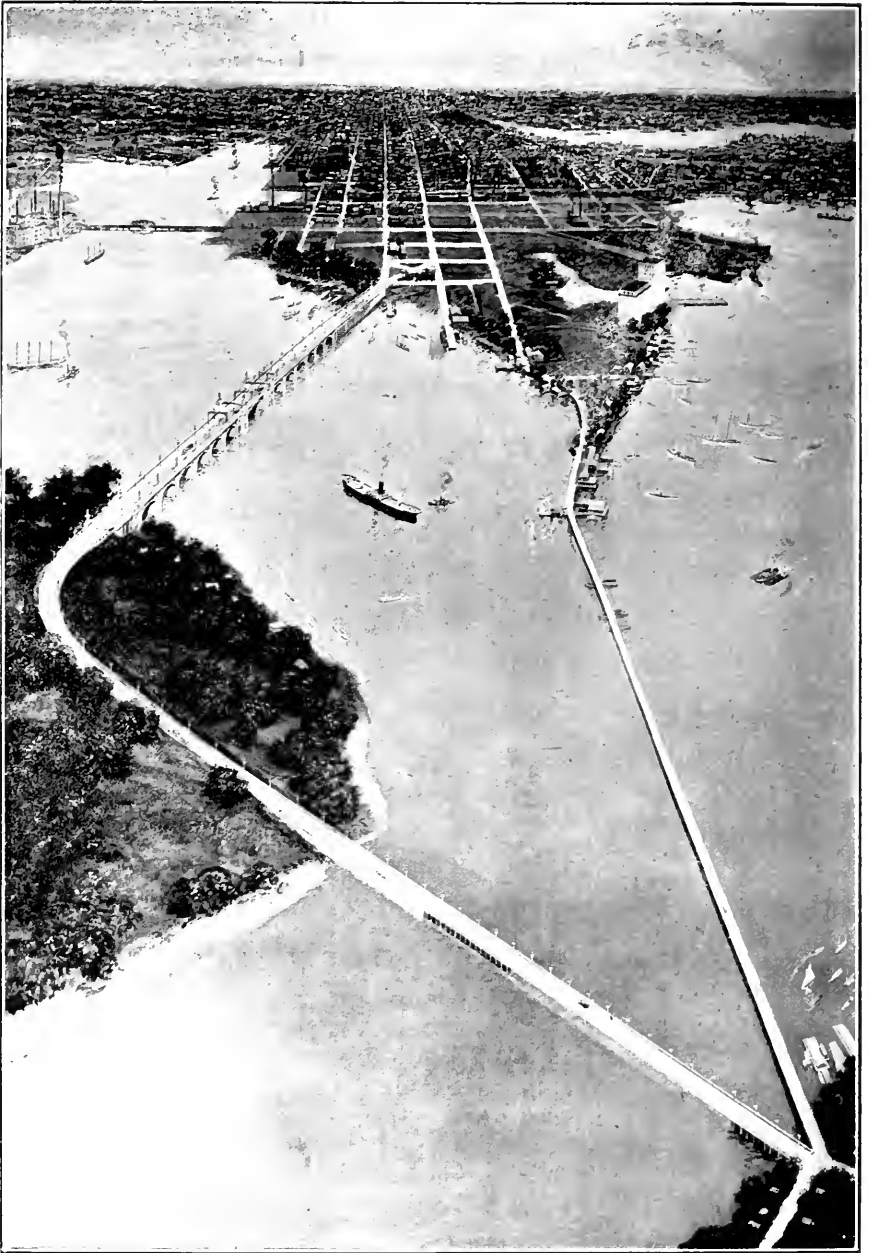
J. FRANK SMITH

FRANK H. ZOUCK, *Assistant Chairman*

HENRY G. SHIRLEY, *Chief Engineer*

LEON E. GREENBAUM, *Counsel*

WM. L. MARCY, *Secretary*



BIRD'S-EYE VIEW OF THE HANOVER STREET BRIDGE, BALTIMORE, MD.
(FRONTISPIECE)

REPORT OF THE MARYLAND STATE ROADS COMMISSION

For 1912, 1913, 1914 and 1915

INTRODUCTORY

The State Roads Commission was created by an Act of the General Assembly of 1908, largely through the efforts of the late Governor Austin L. Crothers. Bonds to the amount of \$5,000,000 were authorized for the purpose of building a main arterial system of State roads, connecting Baltimore City with the counties, and the county seats with each other, as far as practicable. The law authorized a Commission of six members, to consist of the Governor, *ex officio*, and five to be appointed by the Governor, these to be a Chairman at a salary of \$2,500 per annum, two members at \$2,000, and two officials of the Maryland Geological and Economic Survey without pay. The Commission was organized on April 30, 1908, and was composed of Governor Crothers, Chairman John M. Tucker, Ira Remsen, Wm. Bullock Clark, S. M. Shoemaker and Francis C. Hutton.

On May 21 following Mr. W. W. Crosby was elected Chief Engineer, Mr. Carville D. Benson, Counsel, and Mr. John C. Bowerman, Secretary.

On May 19, 1910, Mr. Bowerman resigned as secretary, and on June 11 of the same year Mr. E. E. Goslin succeeded him.

By an Act of 1910 the Governor was authorized to appoint another commissioner at \$2,000, and Mr. Charles B. Lloyd was added to the board on March 29, 1911.

The administrative offices of the Commission were located in the Union Trust Building, Baltimore, while the engineering department was at 532 North Howard Street, in the same city. This organization and arrangement continued during the years 1908, 1909, 1910 and 1911.

During the summer of 1908 public meetings were held by the Commission throughout the State for the purpose of laying out such a system as was contemplated by the Act, and as a result a system of about 1,200 miles was determined upon. The remaining months of this year were occupied in the preliminary work of organization and in making surveys of 207.2 miles of road.

On April 1, 1909, the system was finally adopted to include 1,285 miles, and on June 9 the first contract for a State road was let for one mile from Federalsburg to the Dorchester County line, in Caroline County. During this year contracts or other arrangements were entered into for the construction of a total of 111.63 miles of road (of which 7.74 were for grading only), at an estimated cost of \$1,118,204.97; none were accepted as completed; surveys were made of 264.37 miles, and plans and specifications prepared for 120.70 miles.

On June 1, 1910, the State aid work and the construction of the Washington Boulevard were transferred from the Maryland Geological and Economic Survey to the Commission. An Act of the Assembly also provided an additional \$1,000,000 of bonds for the Baltimore-Annapolis Boulevard, the purchase of the Conowingo Bridge, and the building of the Sharptown Bridge, etc. Negotiations were begun to obtain a number of turnpikes, the purchase of which would abolish the tollgates thereon. During 1910 contracts and other arrangements were made for the construction of a total of 160.29 miles of new road (of which 7.62 were for grading only), at a cost of \$2,014,216.49; contracts for 57.80 miles were accepted as completed, which included 2.93 graded only; surveys were made of 139.98 miles, and plans and specifications were prepared for 185.29 miles. In August maintenance work was started, and 22 miles of State road were treated with pitch, while 70.75 miles, including portions of the Washington Boulevard, were put in condition for the winter at a cost of \$21,171.64. On State aid work, after June 1, 1910, 7.61 miles of new road were started, at a cost of \$101,935.66; and during the year of 1910, 12.33 miles were certified to the State Comptroller; surveys were made of 9.18 miles; plans and specifications were prepared for 8.14 miles, and 12.33 miles were accepted and turned over to the counties.

In 1911, including the Washington and Annapolis Boulevards and Baltimore City, a total of 78.99 miles of new State road were started, at a cost of \$1,095,329.15; 110.34 miles were accepted as completed, which included 18.04 miles graded only; surveys were made of 88.20 miles, and plans and specifications prepared for 80.87 miles. Of the 168.58 miles of State road accepted at the end of the year, including the Washington Boulevard, 100.39 miles were oiled, and maintenance work was done on 332.38 miles, at a total cost of \$104,138.32. On State aid, 11.54 miles of new work were started; 28.44 miles were certified to the State Comptroller; surveys were made of 33.18 miles; plans and specifications were

prepared for 23.77 miles, and 28.44 miles were accepted and turned over to the counties. The acquirement of turnpikes, which was begun in 1910, was continued during 1911, until 136 miles had been purchased, at a cost of \$265,019, and 53.50 miles were taken over from the United Railways and Electric Company, making a total of 189.50 miles incorporated into the State system.

During the years 1908, 1909, 1910 and 1911 there were let or otherwise arranged for by the Commission, including the Washington Boulevard, a total of 353.44 miles of new State road (30.06 of which were graded only), at a cost of \$4,037,217.16; 168.58 miles were accepted as completed, 25.78 miles of which were graded only; surveys were made of 699.75 miles; plans and specifications were prepared for 386.86 miles, and 210.55 miles remained uncompleted at the end of the four years. In the maintenance department, of the 168.58 miles accepted, 138.79 were treated with tar or oil, and maintenance work was done on 305.19 miles, including portions of old pikes, at an aggregate cost of \$125,309.93. On State aid work, a total of 19.15 miles of new road had been started, at an estimated cost of \$291,650, which includes \$25,000 for the Dover Bridge; 40.77 miles were certified to the State Comptroller; surveys were made of 42.36 miles; plans and specifications were prepared for 31.91 miles, and 40.77 miles had been accepted and turned over to the counties.

For further details as to the operations for these years reference is made to the report of the Commission for that period.

OPERATIONS IN 1912

On January 10, 1912, Governor P. L. Goldsborough, of Cambridge, Dorchester County, was inaugurated, and thereby became a member *ex officio* of the Commission.

On January 25, at the first meeting of the Commission after Governor Goldsborough's inauguration, upon his motion, a committee, consisting of Messrs. Clark, Shoemaker and Lloyd, was appointed to make a report of the operations of the Commission for the four years of 1908, 1909, 1910, and 1911. This committee submitted a preliminary report on March 1 and published a final report in May of the same year.

On March 1, Mr. O. E. Weller, of Arlington, Baltimore County, was inducted as Chairman, vice Mr. Tucker, resigned.

On April 8, the Assembly authorized another issue of \$3,170,000 of bonds, to continue the work on the system.

On April 19, the office of Assistant Chairman was created, and was filled by the appointment of Mr. F. H. Zouck.

Shortly thereafter a Right-of-way Department was established, and placed in charge of an expert.

About the middle of May arrangements were consummated for securing the services of Mr. Henry G. Shirley, as chief engineer, to succeed Mr. Crosby, resigned. Mr. Shirley had been Roads Engineer for Baltimore County for eight years, and was exceptionally well qualified for his new position.

On May 22, Mr. W. B. Miller, of Salisbury, Wicomico County; Mr. Andrew Ramsay, of Mt. Savage, Allegany County, and Mr. E. E. Goslin, of Federalsburg, Caroline County, were appointed by Governor Goldsborough as new members of the Commission, succeeding Messrs. Shoemaker, Hutton, and Lloyd, resigned. Dr. Remsen and Dr. Clark were retained on the board as representatives of the Maryland Geological and Economic Survey.

On May 29, Mr. Leon E. Greenbaum, of Baltimore, was elected counsel, succeeding Mr. Benson, resigned.

On June 1, after several months of study and investigation, including an examination of the latest methods in use in Massachusetts and New Jersey, a new and modern system of bookkeeping and accounting was installed by Messrs. Haskins and Sells, certified public accountants, of Baltimore, London, New York and other large cities. This system is so simple that a detailed statement of financial operations can be taken off for each month and for the whole period from April 30, 1908, within a very short time. (At the request of the director of the United States Office of Public Roads at Washington, Chief Engineer Shirley read a paper on this system at the annual meeting of the American Road Congress at Atlantic City on October 3, 1912.)

On June 5, Mr. William L. Marcy was elected secretary, to succeed Mr. Goslin, resigned.

On June 10, the executive offices were consolidated with the engineering department, thus effecting a large saving in expense, besides adding greatly to the working efficiency of the forces.

On June 15, Mr. Shirley took active charge as chief engineer, and by his indefatigable efforts soon had a large amount of work going throughout the State.

On August 15, a highly important reorganization of the engineering department was decided upon. Instead of having separate construction and maintenance departments, each covering the whole State, with assistant engineers and engineer inspectors

for each of these departments, and using Baltimore as headquarters, thus duplicating inspection trips, increasing traveling expenses and railroad fares, losing a large amount of time in reaching working points, dividing responsibility, etc., these two departments were consolidated into one and the State was divided into eight geographical sections, of two or three counties each, with a Resident Engineer living at a central point in each residency, responsible for all construction, maintenance, and State aid work in his territory, equipped with a motorcycle so as to enable him to reach all parts of same quickly and frequently. This has saved the State thousands of dollars yearly in expenses and in increased effectiveness. (It is worthy of remark that a board of consulting engineers, consisting of three distinguished highways engineers, appointed by the Governor of New York a couple of years ago to make a study and report on the condition of the Highways Department of that State, recommended the principle of this organization for handling the expenditure of \$65,000,000 on their roads.)

On August 20 a Purchasing Department was organized requiring written requisitions similar to that in vogue with large railway corporations. All supplies, materials, stone, sand, oil, machinery, etc., are bought by a Purchasing Agent, after approval by the Chairman and Chief Engineer. It is calculated that this has saved the State \$59,500 in three years and four months.

On September 1 the eight new residencies were mapped out and the Resident Engineers appointed to take charge of them.

On September 10 an equipment ledger was opened with a complete inventory of all machinery and tools. This ledger was put in charge of a special man to check and watch the equipment.

In October the taking of cash discounts on bills was commenced for the first time, by which \$8,708.17 has been saved in three years and two months.

The practice was begun of assembling the engineering and inside forces at headquarters several times each year for talks on their duties by the Chairman, the Chief Engineer, and the Resident Engineers. These gatherings encourage the men, enable them to interchange ideas and are productive of a better *esprit de corps*.

The Engineering Department was classified and placed upon a strictly merit basis, with an assurance of recognition and promotion for those proving themselves worthy of it.

Active operations were not begun in 1912 until July, when few contractors were in a position to bid on the work, which was further retarded by the process of reorganization during the short working season, but during the year 96.16 miles of new State road were started at an approximated cost of \$906,672.55; 153.92 miles were completed; 138.94 miles were under construction at the end of the year; surveys were made of 372.03 miles, and plans were prepared on 110.12 miles. In the Maintenance Department 182.04 miles were oiled; 153.92 miles were placed under maintenance, and 4.65 miles were resurfaced or reconstructed.

On State aid work 6.92 miles of new road were let at an estimated cost of \$77,776.36; 8 miles were certified to the State Comptroller; surveys were made of 83.97 miles; plans prepared on 16.05 miles, and 8 miles were accepted and turned over to the counties.

The total approximated amount of State and State aid work in 1912 was \$1,529,501.25 (exclusive of \$175,000 paid by the counties) and covering 307.78 miles of road.

OPERATIONS IN 1913

Early in this year a comprehensive reorganization of the office force was put into effect, by which duties and responsibilities were more clearly defined, salaries readjusted, the clerks graded, and a merit system established along lines similar to the Engineering Department.

A system of monthly reports was inaugurated, showing in detail the financial operations for each month and for the whole period from April 30, 1908.

The specifications for contracts were modified and simplified by Chief Engineer Shirley, after much study, so as to produce less friction with contractors while amply protecting the interests of the State.

A number of checks and safeguards for payments and estimates, shown by experience to be necessary, were gradually adopted.

Studied attention was given to a steady and progressive development of the Maintenance Department, more details of which are given later under a separate heading.

A number of superintendents, capable of handling by force account work, which for various reasons could not be let by con-

tract, were trained or secured, and the results of their work compare very favorably with that done by contractors.

Steps were taken for creating greater interest in some of the counties in State aid work, these including public meetings in Charles, St. Mary's, Calvert, Frederick, Washington and Garrett Counties. This policy, with a more vigorous prosecution of the work, brought the total for the State up to \$267,019.26 for 1913, which, added to the same amount for the counties, would make an aggregate of \$534,038.52, a much larger sum than in any preceding year.

Complete records of the service of all employees were secured and studied, with the object of perfecting the most effective organization possible in the shortest time.

One of the most important accomplishments of the year was in bringing about a more friendly feeling on the part of contractors, whereby more, better, and larger contractors are bidding on our State road work than ever before, these coming from Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Delaware, West Virginia, Virginia, and the District of Columbia, besides many new ones from our own State.

The general methods of handling office and engineering details were gradually simplified and better co-ordinated.

The offices of the Commission were removed to more commodious and specially designed quarters in the Garrett Building, Baltimore, occupying the whole of the sixth floor.

The effect of these various steps was apparent in a large increase in the amount of work done in 1913.

On the State system, 154.46 miles of new road were begun, at a cost of \$1,700,937.35; 202.42 miles were completed; 90.98 miles were under construction at the end of the year; surveys were made of 372.03 miles, and plans were prepared on 235.79 miles.

In the Maintenance Department, 326.61 miles were oiled; 575 miles were maintained, and a total of \$261,379.48 spent for oiling and maintenance.

On State aid work, 54.88 miles of new road were started, at a cost of \$595,718; 18.15 miles were certified to the State Comptroller; surveys were made of 94.83 miles; plans were prepared on 69.63 miles, and 18.15 miles were accepted and turned over to the counties.

The total of 366.55 miles of State and State aid work in 1913 approximated \$2,363,905.39.

OPERATIONS IN 1914

In order to secure for the State the benefit of low bids and sharp competition from contractors who were unemployed during the winter of 1914, it was anticipated that the Legislature would make another large appropriation as recommended by the Commission, and with this end in view advertisements for bids for the construction work to be done in 1914 and 1915 were made in advance, and contracts let, subject to sufficient money being provided by the Legislature to cover them. All contracts, after being advertised and bids opened, were let to the lowest responsible bidders, under bond of a satisfactory Surety Company. These advertisements were so planned that four or five contracts, aggregating from 10 to 20 miles of road, were advertised each week, this continuing for a period of about 20 weeks. This gave the bidders who were not successful at one letting an opportunity to bid again the following week, and so on until each could have a chance to obtain his quota of the work. Bids were opened in this way continuously each week, from February, through March, April, and a portion of May, by which time the necessary amount of work had been let. By this procedure each contractor was given an opportunity to bid until he was successful in securing contracts. This also gave the advantage of having a number of contractors building different sections, rather than one contractor having several pieces of work to do. Some of the contracts were advertised for long sections, which induced many wealthy contractors with large outfits, including steam shovel, etc., to come into the State from New York, New Jersey, Virginia, Massachusetts, Pennsylvania, and other States. As a result of this method many of the bids were exceedingly low, and the State is estimated to have saved from \$250,000 to \$500,000 over what this work would have cost if it had not been advertised until after the appropriation bill was signed on April 16th, as was the case in 1912. (It is interesting to note that the "Engineering News" of New York, upon being requested by the State Highway Department of that State to recommend a system of advertising for bids, recommended practically the plan thus adopted by this Commission.)

In anticipation of this large volume of construction, in March the field forces were enlarged, and the number of residencies in

the State was increased from eight to eleven. This gave less territory to the Resident Engineers, each of whom was located centrally in his residency, and who was placed in charge of all the construction, as well as the maintenance, and other work. By thus dividing the State up into smaller units, each Resident Engineer was able to handle to better advantage the larger amount of work in his division.

After thorough study, the contracts and specifications were modified and simplified, so as to expedite actual construction and to bring it up to the latest methods.

It had been the practice to have the monthly estimates come in at the end of each month, thus throwing a very large amount of work on the office force at the beginning of the succeeding month. This difficulty was met by having one-third of the Resident Engineers take their estimates between the first and tenth of the month, one-third between the tenth and the twentieth, and the remaining one-third between the twentieth and the thirtieth. This made a continuous flow of estimates coming into the office from the field, and enabled a minimum number of employees to handle a maximum amount of work. By this arrangement the much larger number of estimates was handled expeditiously, economically, and more satisfactorily.

On March 20 the Commission lost a valuable member by the death of Mr. E. E. Goslin. His great interest in the construction of roads throughout the State, his many years' service in the Legislature, and the conscientious study he had made of the subject, as well as his zeal and industry, made his loss a serious one to the State, and his untimely demise was greatly deplored by good roads advocates throughout the country.

On April 16, 1914, the Legislature made an additional appropriation of \$6,600,000, of which \$5,000,000 was to be applied in filling in the main gaps of the system in the counties and \$1,600,000 for Baltimore City to build the Light (Hanover) Street bridge and for paving streets. This appropriation was apportioned by the Act as recommended by the Commission in its preliminary report for the years 1912 and 1913, as follows:

APPROPRIATIONS FOR 1914 AND 1915

COUNTY.	APPROPRIATION.
Allegany.....	\$175,000
Anne Arundel.....	125,000
Baltimore.....	490,000
Calvert.....	40,800
Caroline.....	300,000
Carroll.....	210,000
Cecil.....	336,000
Charles.....	175,000
Dorchester.....	215,000
Frederick.....	300,000
Garrett.....	290,000
Harford.....	110,000
Howard.....	200,000
Kent.....	95,000
Montgomery.....	240,000
Prince George's.....	225,000
Queen Anne's.....	150,000
St. Mary's.....	76,000
Somerset.....	227,200
Talbot.....	115,000
Washington.....	275,000
Wicomico.....	250,000
Worcester.....	300,000
Washington Boulevard.....	50,000
Total for counties.....	\$5,000,000
Baltimore City.....	1,600,000
Amount of new appropriation.....	\$6,600,000

The law provided that the \$5,000,000 for the counties should be expended in paying for the work already done in counties in excess of previous allotments, in finishing the work then under construction and not completed, and should then be applied, first, to filling in the main gaps of the system, and that the balance remaining thereafter should be used for secondary gaps, for necessary bridges, for rights-of-way, for overhead expenses, for the construction and maintenance of the Washington Boulevard (\$50,000), and for the other miscellaneous purposes.

It also specified that so much of the \$1,600,000 as might be necessary, should be used by the State Roads Commission in constructing a new bridge over the Patapsco River from Baltimore City to Brooklyn, in Anne Arundel County, and that upon the completion of the said new bridge the Mayor and City Council of

Baltimore should remove the Light Street bridge, and that any balance remaining after the cost of constructing the new bridge had been defrayed should be used by this Commission for the paving of streets in Baltimore City.

The Legislature also passed an Act changing the personnel of the Commission, so that there should be two paid members on the Board in place of the two unpaid members from the Maryland Geological and Economic Survey, and providing further that two members of the Commission should be of a different political faith from that of the Governor of the State. In pursuance of this law, on May 29th, Governor Goldsborough appointed Thomas Parran, Republican, of St. Leonard, Calvert County; J. Frank Smith, Democrat, of Scotland, St. Mary's County; and John M. Perry, Democrat, of Centreville, Queen Anne's County, as members of the Commission, to fill the places held by the members of the Maryland Geological and Economic Survey, and the vacancy caused by the decease of Mr. Goslin.

By the end of June approximately \$2,335,000 of contracts had been let, covering 230 miles of road, and advertising for bids was discontinued, except in special cases, and where plans were delayed because of rights-of-way, or from other causes. Experience demonstrated that the organization perfected by the Commission was sufficient to have handled a much larger quantity of work, if the funds had been available for the purpose. As it was, it was let and carried out smoothly and economically, and by the end of the year a large percentage of the new mileage was opened to traffic, and the balance was in good condition to pass through the winter.

On the State system, 285 miles of new road were begun, at a cost of \$3,089,000; 225 miles were completed; 204 miles were under construction at the end of the year; surveys were made of 534 miles; and plans were prepared on 443 miles.

In the Maintenance Department, 448 miles were oiled; 851 miles were maintained; and a total of \$309,503.98 spent for oiling and maintenance.

On State aid work, 69 miles of new road were started, at a cost of \$624,279; 21 miles were certified to the State Comptroller; surveys were made of 102 miles; plans were prepared on 76 miles, and 21 miles were accepted and turned over to the counties.

The total expenditure on the 354 miles of State and State aid work in 1914 approximated \$3,713,279.

OPERATIONS IN 1915

By virtue of the large amount of work finished in 1914, it became possible to reduce the working forces in 1915, and in February the Engineering Department was reorganized, and the number of residencies in the State was decreased from eleven to eight. During the same month a combined gang and patrol system of maintenance was introduced and put into operation in several counties. Contracts for the balance of the uncompleted work were let as rapidly as possible, and a large percentage of a more durable type of construction was called for than in previous years, because of the heavy increase in motor traffic of all kinds. By early summer all of the contracts carried over from 1914 were completed, as well as substantially all the work let in 1915, and by the end of the latter year the work provided for by the Legislature was practically finished, with the exception of several sections in the City, one or two in the counties, and the Hanover Street bridge.

By November 15, 1915, the main system was about completed, and it was possible to ride over trunk lines: (a) From Oakland, in Garrett County, at the western end of the State, through Cumberland, Hagerstown, Frederick, Baltimore, Elkton, Chestertown, Centreville, Easton or Denton, 350 miles to Cambridge, or 405 miles through Salisbury to Ocean City, on the Atlantic Ocean, or 406 miles through Princess Anne to Crisfield at the southern extremity of the Eastern Shore. (b) From Baltimore 127 miles to Point Lookout, in Southern Maryland, via Washington, Waldorf, Bryantown, Hughesville, Charlotte Hall, Leonardtown and St. Mary's City. (c) From Baltimore 84 miles to Solomon's Island, the southernmost point in Calvert County, through Annapolis, Birdsville, Mt. Zion, Owings Station, Prince Frederick and Lusbys. And (d) over about 300 miles of the system not directly included in the foregoing arteries. This makes approximately 1,000 miles of the system completed at the end of 1915.

On the State system, 202 miles of new road were begun, at a cost of \$2,650,000; 187 miles were completed; 15 miles were under construction at the end of the year; surveys were made of 368 miles, and plans were prepared on 53 miles.

In the Maintenance Department, 504 miles were oiled; 1,049 miles were maintained, and a total of \$379,028.20 spent for oiling and maintenance.



SECTION OF CUMBERLAND ROAD, IN ALLEGANY COUNTY, BEFORE IMPROVEMENT.



SECTION OF CUMBERLAND ROAD, IN ALLEGANY COUNTY, AFTER IMPROVEMENT.



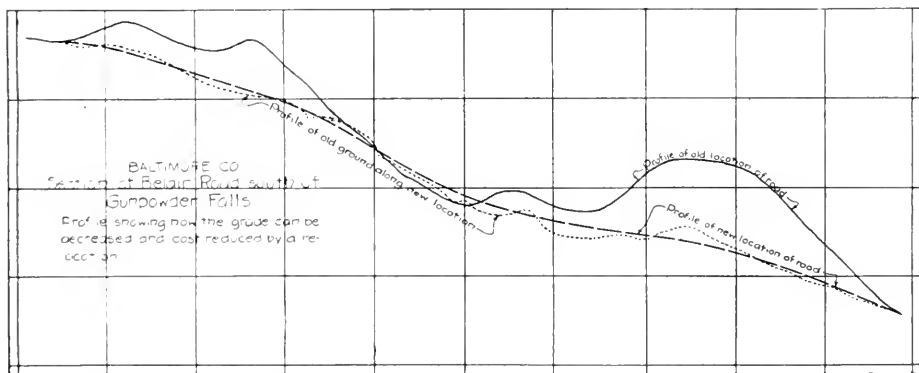
VIEW OF NEW COLLEGE CREEK BRIDGE, ANNAPOLIS, ANNE ARUNDEL COUNTY,
MARYLAND, REBUILT 1913.



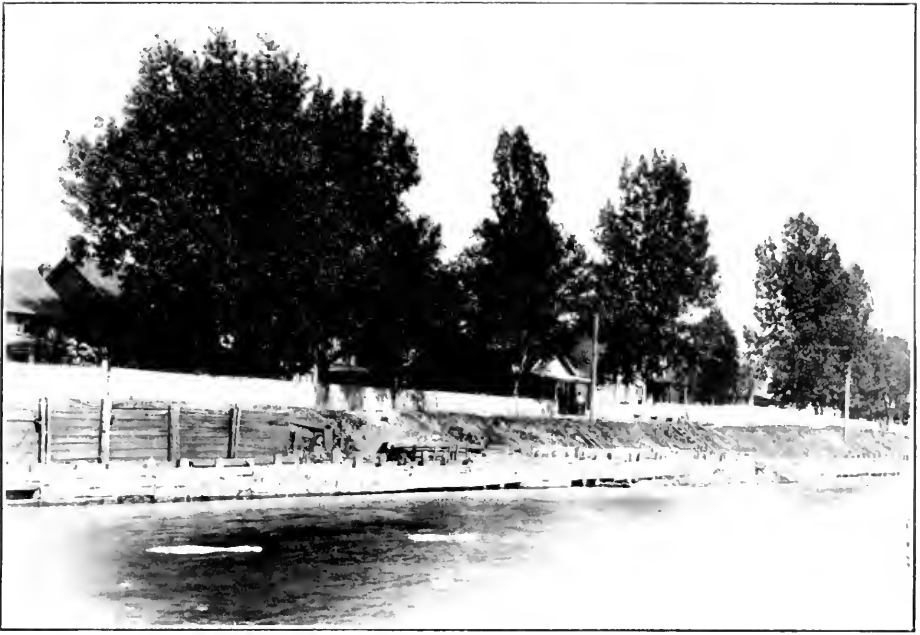
VIEW SHOWING MAINTENANCE OF A SECTION OF THE ANNAPOLIS BOULEVARD,
IN ANNE ARUNDEL COUNTY.



VIEW OF SECTION OF BELAIR ROAD, BALTIMORE COUNTY, SHOWING RELOCATION TO IMPROVE GRADE.



PROFILE SHOWING OLD AND NEW GRADES ON THE OLD ROAD AND RELOCATION SHOWN ABOVE.



VIEW SHOWING PATUXENT RIVER SIDE OF SOLOMON'S ISLAND BEFORE THE
CONSTRUCTION OF SEA WALL, IN CALVERT COUNTY.



VIEW SHOWING PATUXENT RIVER SIDE OF SOLOMON'S ISLAND AFTER THE
CONSTRUCTION OF SEA WALL, IN CALVERT COUNTY.

On State aid work, 73 miles of new road were started, at a cost of \$592,375; 55 miles were certified to the State Comptroller; surveys were made of 238 miles; plans were prepared on 150 miles, and 55 miles were accepted and turned over to the counties.

The total of 275 miles of State and State aid work in 1915 cost approximately \$3,242,375.

MONEY APPROPRIATED AND RECEIVED TO DATE

The \$15,770,000 of the State road bonds authorized by the last four General Assemblies have been disposed of by public sale as provided by the Acts, as follows:

YEAR AUTHORIZED.	AMOUNT OF BONDS.	RATE.	NET PROCEEDS.
1908.....	\$ 5,000,000	3½%	\$ 4,760,209.76
1910.....	1,000,000	4%	991,447.55
1912.....	3,170,000	4%	3,110,432.61
1914.....	6,600,000	4%	6,514,434.15
	\$15,770,000		\$15,376,524.07

Attention is called to the fact that these bonds have been sold at a loss or discount to the State of \$393,475.93, and that the average rate received for the \$15,770,000 of bonds was 97.5049%.

In connection with the foregoing it is interesting to note that the Act of 1914, appropriating the \$6,600,000, provided that \$3,000,000 of these bonds could not be disposed of earlier than August 1, 1914, and the remaining \$3,600,000 not before February 1, 1915. In order to promptly meet the payments coming due on the \$2,500,000 of contracts that were let early in 1914, advertisement of the sale of the \$3,000,000 of bonds was begun on July 6, 1914, with payment to be made on them at the earliest possible date, that is, on August 1. These bids were opened on July 16, and exceedingly low tenders were received, the lowest being \$2,977,740, or at the rate of 99.258%. This offer was accepted, but on the day of payment, August 1st, the great European war had begun, and considerable pressure was necessary to secure full cash payment for the bonds, against which securities had been required as collateral. Had the issue not been advertised until after August 1, the bonds could not have been sold for many

months, which would have stopped all road building and caused the State a very large loss. The Commission was equally fortunate in selling the remaining \$3,600,000 of bonds, advertisement of which was commenced on January 5, 1915, to be paid for at the earliest date, that is, on February 1 following. A period of great financial stringency had existed from the opening of the war until just about this date, when money became much easier, and this was the first large issue of bonds in the country to be sold under favorable conditions. A price of \$3,539,160 was bid for them, this averaging 98.31%, which offer was accepted, and the money received on February 10th. It thus happened that these two issues were sold to the best possible advantage. The net amount received for the \$6,600,000 was \$6,514,434.15, this being an average of 98.7035% for the whole issue.

In addition to the above, the following special issues of State road bonds have been authorized, duly sold, and the proceeds applied as provided by law, viz: (a) \$100,000 by the Acts of 1910, Chapter 409, for improving State Road No. 1 (the Baltimore-Washington Boulevard); (b) \$20,000 by the Acts of 1910, Chapter 409, Sections 104 and 108, for the improvement of Columbia Avenue, in Baltimore City, from Gwynn's Falls to the entrance to Carroll Park, the cost of which was \$10,000, the remaining \$10,000 reverting to the City, as provided by the Act; (c) \$80,000 in the Consolidated State Loan of 1913, Acts of 1912, for the improvement of the Old Government Post Road, in Cecil County, and (d) \$15,000 from the State Treasury by the Acts of 1914, Chapter 50, to concrete the Baltimore and Washington Road through the village of Elkridge, in Howard County.

ANALYSIS OF DISTRIBUTION OF APPROPRIATIONS

(Net Amount Available for Road Construction)

The average cost of our State roads is frequently obtained by dividing the total face value of the bonds issued by the mileage of completed roads, which method gives a very high cost per mile. This result is so inaccurate and misleading that an analysis has been made of the distribution of the proceeds of the \$15,770,000 of bonds already appropriated, which shows that the following ascertained or estimated round sums must first be deducted therefrom before reaching the net amount available for the construction of the mileage of the main arterial system outside of Baltimore City, namely:

Amounts Not Available For Construction of Roads

(1) Baltimore City (for paving streets and for the Hanover Street Bridge).....	\$3,145,516.92
(2) Amount paid the United Railways & Electric Company for reconstructing its road and overhead structures, for steel rails for its tracks, and for paving between its tracks and two feet outside, under Section 32-E of the Act of 1908, and under the agreement of April 29, 1909, etc. (1910-1915).....	343,977.72
(3) Paid for the purchase in 1910 and 1911 of the Frederick, Boonsboro, Conococheague, Emmitsburg, Jefferson, Clarksville, and other turnpikes, \$265,000; in 1913 for the Union Turnpike, \$20,000, and in 1915 for the Reisterstown Turnpike, \$35,767.50 (1910-1915) ..	320,767.50
(4) Cost of College Creek bridge to date, as provided in the Acts of 1910 and 1914.....	51,248.72
(5) Cost of paving Bush, Ridgely and Russell Streets, in South Baltimore, to date.....	32,542.17
(6) Loss on sale of \$15,770,000 of State road bonds	393,475.93
(7) Approximated excess cost of maintenance expenditures of \$1,228,511.20 over receipts of \$776,918.42 (1908-1915).....	451,592.78
(8) Purchase in 1911 of the Conowingo Bridge under the "Public Highways 1910" Act.....	88,000.00
(9) Cost of the Sharptown Bridge, with approaches, etc., under the "Public Highways 1910" Act (1911-1912).....	72,539.54
(10) Estimated cost of 17 miscellaneous bridges, costing over \$2,000 each and not fairly chargeable against the mileage construction proper (1909-1915).....	210,000.00
(11) For the purchase of steam rollers, sprinklers, traction engines and cars, stone crushers, tools and other road-building equipment (1908-1915)....	84,082.27
(12) For preliminary surveys, plans and estimates for the entire system (1908-1915).....	139,940.58
(13) General overhead and administrative expenses, including salaries of Commission, engineering and office force, headquarters' expenses, etc., for eight years (1908-1915), this being 3.13075% on the \$15,376,524.07 received from the sale of the \$15,770,000 of bonds....	481,400.53
(14) Estimated for various miscellaneous expenditures, supplies, office fixtures, engraving bonds, damages for accidents, etc. for eight years (1908-1915)	131,000.00
(15) Cash on hand December 31, 1915.....	714,868.31
Total amount <i>not available</i> for main system.....	\$6,660,952.97
Total amount <i>available</i> for main system.....	9,109,047.03
Total bond appropriation.....	\$15,770,000.00

“ANNAPOLIS BOULEVARD” FUND

Chapter 116 of the Acts of 1910, called the “Public Highways 1910” Act, appropriated \$1,000,000 of bonds, the proceeds of which were devoted to:

1. The purchase of the Conowingo Bridge across the Susquehanna River, between Harford and Cecil Counties.
2. The building of the Sharptown Bridge across the Nanticoke River, between Dorchester and Wicomico Counties.
3. The construction of a boulevard between Annapolis and Baltimore, to start from the foot of King George Street in Annapolis, thence across the College Creek Bridge, the Naval Academy Reservation, over the Severn River Bridge, north to Glenburnie, thence through Anne Arundel and Baltimore Counties to the Baltimore City line, and thence along Bush and Ridgely Streets to the tracks of the B. & O. Railroad in South Baltimore.

The Act specified that this Boulevard should in no place be less than 30 nor more than 60 feet wide, and that the macadam or other metal surface should be not less than 16 feet in width.

It also provided that any balance remaining after carrying out the provisions of the Act should be allotted to the several counties for the main State road system, except, under certain conditions, to Anne Arundel, Baltimore, Wicomico, Dorchester, Harford and Cecil Counties, and the City of Baltimore, all of which were special beneficiaries thereunder.

Under this Act the Conowingo bridge was purchased on August 22, 1911, for \$88,000, of which \$73,000 was paid in cash, the remainder representing first mortgage bonds of \$15,000 outstanding thereon. As, under the provisions of the Act, not more than \$65,000 could be used for this purpose, the remaining \$8,000 of cash paid has been charged equally against Harford and Cecil Counties. No provision was made for the redemption of the \$15,000 of bonds, but as they are a lien upon the bridge they must of necessity be taken care of by the State; \$6,000 of them which fell due in 1914 were paid, and charged equally against the regular State road appropriations of Harford and Cecil Counties. This must likewise be done with the remaining \$9,000 when they mature, unless special provision for their payment is made by the General Assembly.

The construction of the Sharptown Bridge (of which a full description is given on page 64 of this report) was begun in 1911,

and it was completed in 1912, at a total cost of \$72,539.54, including the approaches, without the concrete surfacing.

Contracts for building the Boulevard from the north bank of the Severn River to Glenburnie, of bituminous and water bound macadam, a distance of 15.89 miles, were let in 1910 and 1911 and completed in 1912, at a cost of \$274,448.64.

Between 1910 and 1912 there were constructed, and charged against the regular State road allotment of Anne Arundel County, (1) a bituminous macadam road from Glenburnie north, 5.32 miles to Brooklyn, at a cost of \$60,840.06; and (2) a vitrified brick pavement of 0.31 miles in Brooklyn, from the northern extremity of this road to the southern end of the Light Street Bridge, at a cost of \$34,521.37, of which \$14,435.16 (42%) was paid to the United Railways and Electric Company for reconstruction of its track and overhead structures, for new steel rails, etc.

Between 1910 and 1915 there was expended in Baltimore City \$112,555.61 in providing smooth streets from the north end of the Light Street Bridge, over Light Street, Cromwell Street, and Hanover Street to Baltimore Street.

This gave a short and direct boulevard from the Severn River to the business center of Baltimore, representing a total investment of some \$482,000, and the Commission did not feel that the State was justified in also building a paralleling road and spur from Glenburnie to a dead end on Ridgely Street, in Baltimore, as provided by the Act of 1910, at a maximum distance from the completed boulevard of not over $1\frac{3}{4}$ miles at any point, and at an estimated cost of \$180,000. Accordingly, the Commission, in its preliminary report for 1912 and 1913, recommended to the General Assembly of 1914 that such legislation be enacted as would relieve the Commission from the obligation of building this road, and that an estimated balance of \$500,000 be freed from this fund and be applied to the completion of the State Road system proper, thus saving the State that sum. This recommendation was not followed by the Legislature, which passed an Act making it mandatory upon the Commission to build the road. This has since been done in 1914 and 1915, with the exception of the Pumphrey's Undergrade Crossing, as follows:

(1) Glenburnie to Pumphrey, 3.92 miles, concrete, 16 feet wide, \$46,150.

(2) Patapsco River to English Consul Estate, 1.15 miles, concrete, 16 feet wide, \$17,030.39.

(3) Western Maryland Railway crossing in Westport to foot of Ridgely Street (via Russell, Bush and Ridgely Streets), 0.83 miles, of asphalt and brick 60 feet wide, of asphalt 31 feet wide, and of granite blocks $39\frac{1}{2}$ feet wide, total estimated cost, \$38,000.

(The 1.67 miles between the English Consul Estate and the Western Maryland crossing in Westport was built in 1909, 1910, and 1911, of macadam and vitrified brick, from 18 to $49\frac{1}{2}$ feet wide, from the regular State road allotment of Baltimore County, at a cost of \$58,530.59.)

Shortly after the present Commission was appointed in 1912 the County Commissioners of Anne Arundel County began insisting upon the State taking over the College Creek Bridge, which the Commission declined to do, on the ground that it did not have to do so until the State desired to improve the bridge. The County authorities then instituted mandamus proceedings in July, 1912, in the Circuit Court for Anne Arundel County to compel the State to take over the bridge, which mandamus the Court, in September, 1912, refused to grant, thus sustaining the position taken by the Commission. In its preliminary report for 1912 and 1913 the Commission recommended to the General Assembly of 1914 that the State be relieved from taking over this bridge, but the Legislature passed an Act requiring the Commission not only to take it over, but also the adjoining road across the Naval Academy Reservation. The College Creek Bridge was accordingly taken over on March 10, 1914, and an order from the War Department for the widening of the draw necessitated building a new bridge. This was commenced in May, 1914, and finished in October, 1915, at a cost of \$51,954.72, including approaches, etc. A description of this structure is to be found on page 63 of this report.

This completed the Boulevard for a distance of 21.79 miles, at a cost of \$430,151.56, as originally contemplated by the Act of 1910, from the foot of King George Street in Annapolis to Ridgely Street in Baltimore, with the exception of the following unfinished gaps:

- (1) The road across the Naval Academy Reservation.
- (2) The Severn River Bridge.
- (3) The Pumphrey's Undergrade Crossing.

These are considered in detail as follows:

(1) Road across the Naval Academy Reservation, length 0.70 miles. This has cost for maintenance from the time it was taken over by the State on March 10, 1914, to January 1, 1916,

\$2,608.99. After advertisement, a contract was awarded on December 27, 1915, to D. M. Andrew Contracting Company to construct this road of macadam, 16 feet wide, for the sum of \$6,527, this work to be done as soon as the weather will permit in the spring of 1916, unless this road be abandoned because of shifting the southern end of the Severn River Bridge west to a point off the Reservation.

(2) Severn River Bridge. This was owned by Anne Arundel County, but under pressure from the County Commissioners of that County it was taken over by the former State Roads Commission on January 25, 1912. It was in a very bad state of repairs, and has cost the State up to January 1, 1916, for upkeep, extensive repairs, and maintenance, including bridgekeepers, the sum of \$36,148.59, being at the rate of about \$9,000 per annum for the period of practically four years since it was taken over by the State. Owing to the bad bottom and shifting sand in the Severn River, careful tests have been made there by Chief Engineer Shirley, who estimates that it will cost \$300,000 to construct an appropriate new bridge. Owing to the large sum of money involved, an effort has been made by the present Commission to secure the co-operation of all interested parties in bearing a part of this financial burden. These include the State, the Federal Government, Anne Arundel County, the City of Annapolis, the Severn River Improvement Association, and possibly the Maryland Electric Railways Company. Several meetings of representatives of these interests were held in March, 1912, shortly after the induction of Mr. Weller as Chairman, and it was agreed that a joint effort would be made to work the problem out along these lines. It was believed that with the aid of the Naval Academy authorities the Congress of the United States could be induced to appropriate a large sum toward the building of the bridge, as a handsome structure would be a benefit to the Naval Academy, the authorities of which were also anxious to have the road across the Reservation removed, and which could be effected by swinging the south end of the bridge to the west. A bill giving the necessary authority for carrying out this plan was agreed upon and was introduced in the General Assembly of 1912, but was defeated in that body. As there was some doubt whether there might be enough money left in the Annapolis Boulevard Fund for this bridge after finishing the boulevard to the foot of Ridgely Street; the Commission has not deemed it wise to undertake the construction of same, but recommends that before the State as-

sumes the entire cost of this structure, another attempt be made to secure the financial co-operation of the other interests mentioned.

(3) Pumphrey's Undergrade Crossing. This has to do with two dangerous grade crossings on the Boulevard over the tracks of the Maryland Electric Railways Company and of the Washington, Baltimore and Annapolis Electric Railroad Company, at or near Pumphrey's Station, in Anne Arundel County, the elimination of which has been a subject of long and tedious negotiations. The Legislature of 1908, Chapter 137, Article II, created the Pumphrey's Grade Crossing Commission, with authority to require the Railways Companies either to provide safety-gates and watchmen at these crossings, or to construct an undergrade crossing structure as designated by that Commission, and empowered and directed the County Commissioners of Anne Arundel County to acquire by condemnation or otherwise the necessary land for same. This Crossing Commission held meetings from time to time, and plans and estimates were made of different locations, but no agreement was reached. By a subsequent Act of the General Assembly of 1910, Chapter 116, the State Roads Commission was given jurisdiction over this road as a portion of the Annapolis Boulevard. The County Commissioners of Anne Arundel County thereafter refused to appropriate any moneys for securing the rights-of-way for the relocations needed for the crossing. This portion of the Act was re-enacted in 1914, after which the State Roads Commission notified the Crossing Commission that the State Roads Commission was willing to take the place of the County Commissioners of Anne Arundel County, and provide the necessary rights-of-way, if the Railways Companies would carry out their part of the agreement. After many conferences, an agreement has at last been reached, whereby the Railways Companies have consented to give an opening 24 feet in width by 14 feet in height under the Railways Companies' tracks at a point about 500 feet south of Pumphrey's Station, and to build and maintain a suitable bridge over the same, the State Roads Commission agreeing to secure any additional rights-of-way needed. The cost of the work to the Railways Companies will approximate \$20,000, and that to the State Roads Commission about \$16,500, which will be \$7,000 more than it would have cost to build the old road with grade crossings. The length of the old road is 3,900 feet, and that of the new 4,100 feet. The rights-of-way have already been secured by the State Roads Commission.

The following tables show the receipts, expenditures, and balance as of December 31, 1915, of the Annapolis Boulevard Fund:

(a) *Receipts*

Under the law, the bonds were sold in four series of \$250,000 each, on January 1, of 1911, 1912, 1913, and 1914, respectively, as follows:

YEAR.	BONDS SOLD.	RATE.	NET PROCEEDS.
1911.....	\$250,000	4 $\frac{1}{2}$ %	\$251,293.50
1912.....	250,000	4 $\frac{1}{2}$ %	251,496.55
1913.....	250,000	4 $\frac{1}{2}$ %	242,982.50
1914.....	250,000	4 $\frac{1}{2}$ %	245,675.00
Totals.....	\$1,000,000		\$991,447.55
Receipts from interest, etc.....			39,423.61
Total receipts to December 31, 1915.....			\$1,030,871.16

(b) *Expenditures*

Paid for Conowingo Bridge,.....	\$65,000.00
Cost of Sharptown Bridge and approaches,.....	72,539.54
Cost to date of College Creek Bridge and approaches,...	51,248.72
Cost of constructed portions of boulevard from the Sewer River, via Glenburnie, to the foot of Ridgely Street, in Baltimore City,.....	378,902.84
Estimated overhead and miscellaneous expenses,.....	32,000.00
Preliminary surveys and plans,.....	2,992.56
Repairs to Severn River Bridge,.....	18,862.82
Maintenance of Severn River Bridge,.....	17,285.77
Maintenance of Conowingo Bridge,.....	6,813.27
Maintenance of College Creek Bridge,.....	526.14

Total expenditures to December 31, 1915..... \$646,171.66

(c) *Cash Balance Available*

Receipts,.....	\$1,030,871.16
Expenditures,.....	646,171.66
Cash on hand December 31, 1915.....	\$384,699.50

MILES OF ROAD COMPLETED AND UNDER MAINTENANCE

The following table shows the miles of road completed and under maintenance in the State system up to January 1, 1916:

ITEM.	MILES.
Main system proper, outside of Baltimore City,.....	862.57
Baltimore-Washington Boulevard,.....	30.13
Baltimore-Annapolis Boulevard,.....	20.79
Streets and bridges in Baltimore City,.....	16.21
Through incorporated towns,.....	11.93
State Aid roads taken over in the State System,.....	49.27
Completed lengths of large bridges outside of Baltimore City,	0.40
Miscellaneous,	3.75
Total.....	995.05
Turnpikes purchased, paid for. and under maintenance, but not yet reconstructed.....	53.25
Total, including turnpikes,	1048.30
Modernized or reconstructed, for various reasons,.....	129.92
Total mileage of State Road System built, bought and reconstructed to date,	1178.22

MILES OF ROAD FINISHED BY YEARS

The following table shows the miles of road and percentage finished by years, including the Baltimore-Washington Boulevard, the Baltimore-Annapolis Boulevard, the State Roads System, and through Incorporated Towns, but not including roads built under the State Aid Law, State Aid roads taken over in the State system, completed lengths of large bridges, turnpikes not yet reconstructed, and duplicated mileage:

YEAR.	MILES FINISHED.	PERCENTAGE FINISHED EACH YEAR.
1908.....	.....	.....
1909.....	.....	.....
1910.....	45.96	5.06
1911.....	87.51	9.62
1912.....	153.92	16.93
1913.....	202.54	22.27
1914.....	226.41	24.90
1915.....	192.99	21.22
Totals,	909.33	100.00

REPORTS OF THE STATE ROADS COMMISSION

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153.92 miles finished in 1912, 16.03 were graded in 1910 and of the 202.54 in 1913, 14.22 were graded in 1910

a larger mileage could have been built in 1913 and in early every county in the State, but for the exhaustion in those years.

COST OF ROADS

Many new and unsolved problems of organization, construction and maintenance, and with sixteen million dollars' worth of various kinds of work scattered over twenty-three counties in the City of Baltimore, administrative capacity and engineering experience of the highest order is required to secure results at the least cost in building such a system as ours in a short period. The results cannot be gauged by tables of the comparative costs of roads in different States or in different parts of the same State, because of widely varying conditions. To accomplish the desired end, it is absolutely essential to have an honest, progressive, efficient and up-to-date business management, free of politics. A close study must also be made of the miles of traffic that each section of road will have to carry, and careful consideration given to the availability of satisfactory road material for carrying such traffic, as well as to the selection of the types of roads needed in each locality.

Considering the relative cost of our roads by years, it should be kept in mind that there has been an increase of perhaps 20% in the cost of stone, labor, freight and other materials in road building since our system was started in 1908, and yet to this, economies have been effected largely through the management of this great enterprise on strict business principles; by the selection in selecting the types and method of construction of our roads; by the marked increase in the morale, loyalty and efficiency of our organization; by close supervision of the work in the field by the Chairman, the Assistant Chairman and the Engineer; by the decrease per mile in overhead expenses by shortening roads by relocations; by eliminating any discrimination in grading, where possible; by saving on sign and unnecessary thickness of concrete and masonry; by the substitution of corrugated iron culverts for concrete; by securing lower bids, better work and more friendly cooperation from contractors; by procuring rights-of-way promptly

MILES OF ROAD COMPLETED AND UNDER MAINTENANCE

The following table shows the miles of road completed under maintenance in the State system up to January 1, 1915.

ITEM.	MILE
Main system proper, outside of Baltimore City,.....	862.8
Baltimore-Washington Boulevard,.....	30.1
Baltimore-Annapolis Boulevard,.....	20.7
Streets and bridges in Baltimore City,.....	16.5
Through incorporated towns,.....	11.9
State Aid roads taken over in the State System,.....	49.5
Completed lengths of large bridges outside of Baltimore City,	0.4
Miscellaneous,	3.5
Total.....	995.0
Turnpikes purchased, paid for. and under maintenance, but not yet reconstructed.....	53.5
Total, including turnpikes,	1048.5
Modernized or reconstructed, for various reasons,.....	129.9
Total mileage of State Road System built, bought and reconstructed to date,	1178.5

MILES OF ROAD FINISHED BY YEARS

The following table shows the miles of road and percentage finished by years, including the Baltimore-Washington Boulevard, the Baltimore-Annapolis Boulevard, the State Roads System through Incorporated Towns, but not including roads built under the State Aid Law, State Aid roads taken over in the State System, completed lengths of large bridges, turnpikes not yet reconstructed, and duplicated mileage:

YEAR.	MILES FINISHED.	PERCENT FINISHED EACH YEAR.
1908.....	.....	.....
1909.....	.....	.....
1910.....	45.96	5.0
1911.....	87.51	9.0
1912.....	153.92	16.0
1913.....	202.54	22.0
1914.....	226.41	24.0
1915.....	192.99	21.0
Totals,	909.33	100.0

Of the 153.92 miles finished in 1912, 16.03 were graded in 1910 and 1911, and of the 202.54 in 1913, 14.22 were graded in 1910 and 1911.

A much larger mileage could have been built in 1913 and in 1915 in nearly every county in the State, but for the exhaustion of funds in those years.

COST OF ROADS

With many new and unsolved problems of organization, construction, and maintenance, and with sixteen million dollars' worth of various kinds of work scattered over twenty-three counties and in the City of Baltimore, administrative capacity and engineering experience of the highest order is required to secure the best results at the least cost in building such a system as ours in so short a period. The results cannot be gauged by tables showing the comparative costs of roads in different States or in different parts of the same State, because of widely varying conditions. To accomplish the desired end, it is absolutely essential to have an honest, progressive, efficient and up-to-date business management, free of politics. A close study must also be made of the ton-miles of traffic that each section of road will have to carry and careful consideration given to the availability of satisfactory road material for carrying such traffic, as well as to the selection of the types of roads needed in each locality.

In considering the relative cost of our roads by years, it should be borne in mind that there has been an increase of perhaps 20% to 40% in the cost of stone, labor, freight and other materials used in road building since our system was started in 1908, and as an offset to this, economies have been effected largely through handling this great enterprise on strict business principles; by discrimination in selecting the types and method of construction used in our roads; by the marked increase in the morale, loyalty and efficiency of our organization; by close supervision of the work in the field by the Chairman, the Assistant Chairman and the Chief Engineer; by the decrease per mile in overhead expenses; by shortening roads by relocations; by eliminating curves; by discrimination in grading, where possible; by saving on the design and unnecessary thickness of concrete and masonry work; by the substitution of corrugated iron culverts for concrete; by securing lower bids, better work and more friendly co-operation from contractors; by procuring rights-of-way promptly

and thereby saving damages claimed by contractors for delays; by the co-ordination of the executive and engineering forces; by buying supplies through a Purchasing Department; by a modern system of bookkeeping and checking estimates; by discounting bills, etc.

In 1913 a comparatively large mileage of old turnpikes was resurfaced, in which the old stone bed was utilized for the first course and a new macadam surface for the second and third courses only. This greatly reduced the average cost per mile for this year and, at the same time, gave a road that was just as substantial and durable as the standard macadam and which compares very favorably with it in appearance.

In 1914 and 1915 a greater proportion of concrete and bituminous roads was laid, because of the heavy increase in motor traffic of all kinds. An unusual amount of very heavy grading was also done, much of it on relocations, to save distance and improve the alignment. This accounts for the higher average cost per mile during these two years, the increased cost being a good investment for the State, because of the large saving in future maintenance over the cheaper class of roads.

The table which follows shows the total and the average cost of our roads, by years. The costs for 1910 and 1911 are taken from the report of the Commission for 1908-11 (page 33), and those of 1912 and 1913 are calculated on the same basis. In each case they include preliminary surveys and plans, grading, surfacing, bridges and culverts, underdrains, inspection and superintendence and rights-of-way, besides overhead and miscellaneous expenses of every character. The mileage for 1912 includes 16.03 miles and that for 1913 9.75 miles, making 25.78 miles, which were graded in 1910 and 1911 and were finished (surfaced) in 1912 and 1913, the cost of both grading and surfacing being included in the 1912 and 1913 totals. The mileage given is of the main system proper, not inclusive of Baltimore City or of the specially constructed Washington and Annapolis Boulevards, except Contract No. 0250 on the Falls Road, in Baltimore City, 0.7 mile, costing \$49,884.69, which was finished in 1911, and was included in the table for that year in the report of 1908-11:

(1) APPARENT COST OF ROADS BY YEARS

The following table gives the cost of roads by years, as shown by the book balances:

YEAR.	MILES CONSTRUCTED.	TOTAL COST.	AVERAGE COST PER MILE.
1908.....	.....	.....	.....
1909.....	.....	.....	.....
1910.....	45.96	\$ 481,715.68	\$10,481.19
1911.....	80.69	992,199.26	12,296.43
1912.....	138.23	1,497,558.85	10,833.82
1913.....	191.79	1,589,253.01	8,286.45
1914.....	226.85	2,835,458.67	12,499.27
1915.....	190.98	2,420,884.29	12,676.11
Totals.....	874.50	\$9,817,069.76	\$11,225.92

In the foregoing table the cost figures by years are *apparent* and not real, because many of the roads were practically finished and opened to traffic at the end of each working season in the autumn, and were so considered when the books were closed at the end of that calendar year. For this reason the mileage was included in that year, but the roads were not actually accepted from the contractors and paid for until the succeeding calendar year. Hence, the final payments on them, including the 10% held back, extras, etc., are necessarily charged in the latter year, although the road mileage was included in the previous year.

In order to make this clearer, there has been prepared the following table, which shows the *actual* cost by years, where all expenditures have been charged in the same year in which the contracts were practically completed:

(2) ACTUAL COST OF ROADS BY YEARS

YEAR.	MILES CONSTRUCTED.	TOTAL COST.	AVERAGE COST PER MILE.
1908.....	.....	.....	.....
1909.....	.....	.....	.....
1910.....	49.96	\$533,851.87	\$10,685.58
1911.....	81.68	1,022,592.68	12,519.50
1912.....	138.99	1,505,941.49	10,834.89
1913.....	186.04	1,717,902.19	9,234.05
1914.....	226.85	2,889,340.65	12,736.79
1915.....	190.98	2,147,440.88	11,244.32
Totals.....	874.50	\$9,817,069.76	\$11,225.92

It will be noted that the totals are the same in both of the foregoing tables, the only variance being in the yearly amounts and averages.

It should also be explained that in the years 1914 and 1915 the contracts included the first oiling of the roads, thereby increasing their cost by that amount, this having previously been charged to maintenance. The cost of the roads for these two years was also largely augmented by the fact that a much larger mileage than theretofore of concrete, bituminous concrete and other high-type construction was built during this period.

The cost of roads by four-year periods is as follows:

COST OF ROADS BY FOUR-YEAR PERIODS

YEARS.	MILES CONSTRUCTED.	PER- CENTAGE	TOTAL COST.	AVERAGE COST PER MILE.
1908-1911.....	131.64	15%	\$1,566,444.55	\$11,823.49
1912-1915.....	742.86	85%	8,260,625.21	11,120.03
Totals.....	874.50	100%	\$9,817,069.76	\$11,225.92

OVERHEAD EXPENSES BY YEARS

The overhead expenses, the mileage and cost of roads constructed, the average overhead expenses per mile and the percentage of overhead expenses to the total expenditures are shown in the following table, which includes Baltimore City and State roads, but does not include the Baltimore-Washington and the Baltimore-Annapolis Boulevards:

YEAR.	OVERHEAD EXPENSES.	MILES CON- STRUCTED.	TOTAL COST OF ROADS.	AVERAGE OVERHEAD EXPENSE PER MILE.	PERCENT OF OVERHEAD EX- PENSE ON TOTAL EX- PENDITURES.
1908.....	\$154,492.02	131.64	\$1,556,444.55	\$1,172.59	9.926%
1909.....					
1910.....					
1911.....					
1912.....	54,197.22	138.99	1,505,941.49	389.94	3.598%
1913.....	59,762.59	186.04	1,717,902.19	321.24	3.478%
1914.....	95,496.97	226.85	2,889,340.65	420.97	3.305%
1915.....	81,946.89	190.98	2,147,440.88	429.09	3.815%
Totals..	\$445,895.69	874.50	\$9,817,069.76	\$509.89	4.542%

It is not possible to separate the overhead expenses for 1908, 1909, 1910 and 1911 by years, because the system of bookkeeping used during that period does not permit of it.

MAINTENANCE

(General Considerations)

Under the rapidly changing traffic conditions the maintenance of modern roads is not less important than their construction, especially as the latter can be deferred while the former cannot. This fact has been consistently recognized by the Commission, which has been alert in keeping our roads up to the highest standard, so that they compare today very favorably with those of our sister States. With the completion of our system in sight, much care and study has been given to perfecting an organization capable of taking care of it in the future properly and at a minimum cost.

Maintenance may be roughly divided into: (a) Oiling, and (b) Patrol service, which subjects will be considered separately, as follows:

(a) *Oiling Roads*

Soon after being finished, all macadam roads should receive a treatment of asphalt or tar, with a covering of sand, gravel or stone chips, for the surface cannot be preserved from the ravages of motor cars, trucks and busses without this protection. In other words, a road should not be considered ready for traffic until its surface has been thus treated. It really should be oiled before being accepted by the State, but it seldom happens that the contractor is equipped to do oiling work. In theory macadam roads should be completed in the spring or early summer, so as to be oiled as soon as the weather is warm enough to secure proper penetration of the oil. In practice they are generally finished late in the fall or winter, when it is too cold to oil the road properly. The public then insists upon its being opened to traffic without this protection, and before it can be oiled the following summer it has frequently picked up and commenced to go to pieces. It then has to be rolled down and put in shape, at additional expense, before it can be oiled. This objection does not apply to concrete roads, and it will be obviated when construction is over.

The following is a resume of our oiling operations by years, using approximate figures:

1908-1909

No oiling was done during these years, for the reason that there was no completed road mileage.

1910

This year, 38 miles were oiled, and 140,000 gallons of oil used, covered almost entirely with local sand and gravel at small cost.

1911

This year, 100 miles were oiled, and 400,000 gallons of oil used, all being covered with local sand and gravel, except about 20 miles.

1912

This year, 178 miles were oiled, and 602,000 gallons of oil used, covered with 2,500 tons of trap rock, or limestone chips. These oiling operations had to be started late in the season, and the only equipment available consisted of one automobile distributor, with some horse-drawn distributing wagons. While local sand or gravel could generally be had for covering, at slight expense, it was found that these materials were usually of poor quality and that much better results were secured by importing stone chips, although this added materially to the cost of the operation.

1913

This year, 317 miles were oiled, and 1,000,000 gallons of oil used, covered with 12,500 tons of stone chips. The results this season were much more satisfactory, especially on the Eastern Shore and in Central Maryland. This was due to letting the contracts in 16 counties to two large oiling concerns, and by purchasing a motor truck equipped for oiling to do such work as could not be given out by contract. This made seven large pressure motor trucks operating in the State at one time. The State truck was made convertible, with two beds, one for oiling and the other for hauling stone chips, gravel, etc., when not used for oiling. Stone chips or washed gravel were used almost exclusively for covering, except in a few cases, where a satisfactory local gravel was found.



VIEW SHOWING SECTION OF IMROVED AND UNIM-
PROVED ROAD, NEAR HUGHESVILLE, IN
CHARLES COUNTY.



VIEW SHOWING RELOCATION OF A SECTION OF
WAYSIDE ROAD, IN CHARLES COUNTY.



VIEWS OF SECTIONS OF THE CAMBRIDGE-MOUNT HOLLY ROAD IN DORCHESTER COUNTY, SHOWING RELOCATIONS TO ELIMINATE BENDS.



VIEW OF SECTION OF KNOXVILLE-BURKITTSVILLE ROAD, IN FREDERICK COUNTY,
BEFORE IMPROVEMENT.



VIEW OF SECTION OF KNOXVILLE-BURKITTSVILLE ROAD, IN FREDERICK COUNTY,
AFTER IMPROVEMENT. BUILT UNDER STATE AID LAW.



VIEW SHOWING CHARACTER OF COUNTRY BEFORE THE CONSTRUCTION OF THE
KEYSER-ACCIDENT ROAD, IN GARRETT COUNTY.



VIEW OF THE KEYSER-ACCIDENT ROAD, IN GARRETT COUNTY, AFTER CONSTRUCTION.

1914

This year, 448 miles were oiled, and 1,427,000 gallons of oil used, covered with 25,250 tons of stone chips.

With the experience gained from previous years, it was decided to do all oiling and surface-treatment work by contract. With this object in view, specifications were prepared during the winter months, and the State was divided into eight geographical divisions, on each of which bids were requested as separate units. The contractors were required to furnish and apply all material, to submit a gallon sample of the product they agreed to use, and to guarantee that all material to be shipped in during the season was to be as good as the sample submitted at the time of bidding. This plan of calling for proposals proved highly satisfactory. Bids were opened on February 26th, with keen competition, there being a total of 98 bids received, to furnish and apply 10 different materials. Contracts were awarded as follows:

OILING CONTRACTS FOR 1914

CONTRACTOR.	DIVISION.	MILES TO BE OILED.	GALLONS OF OIL REQUIRED.	LETTING PRICE.	GALLONS OF OIL REQUIRED PER MILE.	AVERAGE COST OF OILING PER MILE.
Un. Gas Impr. Co...	Salisbury.....	48.10	120,843	\$9,491.57	2,512	\$197.32
Un. Gas Impr. Co...	Easton.....	27.67	83,260	6,463.29	3,009	233.58
Walter Cressy.....	Chestertown.....	43.98	109,827	8,894.00	2,497	202.22
Walter Cressy.....	Baltimore (Part)..	44.12	145,786	11,311.38	3,304	256.37
Barrett Mfg. Co....	Baltimore (Part)..	19.16	61,957	4,292.61	3,233	224.03
Good Roads Co....	Frederick.....	68.72	199,022	14,329.57	2,896	208.52
Sands-Kline Co....	Cumberland.....	69.64	204,280	15,884.18	2,933	228.08
Barrett Mfg. Co....	Hyattsville (Part)..	66.48	205,885	15,192.00	3,096	228.51
Good Roads Co....	Hyattsville (Part)..	5.28	16,520	1,122.25	3,128	212.54
Barrett Mfg. Co....	La Plata.....	19.72	45,354	3,487.72	2,299	176.86
Totals.....		412.87	1,192,734	\$86,175.96	2,888	\$208.72

Because of the milder weather conditions, these oiling operations were commenced the first week in May in the extreme southern counties of Worcester and St. Mary's, and later in that month in the other parts of the State. The contractors were under penalty to complete their contracts in eighty days, and not later than September 1, which was done in every case.

Such roads as were finished by the construction contractors after the oiling contracts were let were treated later in the season, these approximating 22 miles, with 100,000 gallons of oil and 1,500 tons of stone chips. All such roads were treated with one-half gallon of bituminous material per square yard, and with but one or two exceptions they went through the winter in excellent condition.

Eight automobile distributors were employed in applying the oil or tar during the year, and, when requested, help was extended to the counties of the State in treating their State Aid roads, with an experienced State Inspector in charge of this work.

A card system was developed and introduced, which shows in detail the costs of all surface treatment, the pounds per square yard of chips used for covering purposes, etc., this data being very valuable in handling the work and for future comparisons.

In order that the progress of the operations could be followed closely and quickly in the office, a large map of the State was prepared, showing all contracts to be treated. Brass tacks were used on the map to represent the location of the automobile distributors, and red tacks to show the completed contracts. An oil inspector accompanied each automobile distributor and was required to send into the office daily report cards covering the work done each day, and reporting where the truck would be working the following day. From these cards the position of the distributors was noted each day on the map with the brass tacks, and at the end of the season the map showed by the red tacks each contract which had been treated.

1915

This year, 504 miles were oiled, and 1,500,000 gallons of oil used, with 32,500 tons of trap rock, or limestone chips.

The State was divided into seven oiling divisions, and bids for surface treatment were opened on March 16th. Offers were received from nine contractors, a number of whom bid not only on one or more divisions but also for the work for the entire State. Contracts were awarded as follows:

OILING CONTRACTS FOR 1915

CONTRACTOR.	DIVISION.	MILES TO BE OILED.	GALLONS OF OIL REQUIRED.	LETTING PRICE.	GALLONS OF OIL REQUIRED PER MILE.	AVERAGE COST OF OILING PER MILE.
Un. Gas Impr. Co...	Salisbury.....	56.98	150,197	\$9,689.80	2,636	\$170.05
Atlantic Ref. Co....	Chestertown.....	61.96	156,037	7,058.56	2,518	113.92
Good Roads Co.....	Baltimore.....	83.72	238,502	14,258.06	2,848	170.30
Good Roads Co.....	Frederick.....	90.73	225,231	12,932.00	2,482	142.53
Sands-Kline Co.....	Cumberland.....	79.61	205,676	14,287.41	2,583	179.46
Headley Good Roads Co.....	Hyattsville (Part).	31.27	100,000	6,134.55	3,197	196.18
Barrett Mfg. Co....	La Plata.....	34.14	84,832	5,730.11	2,484	167.84
Barrett Mfg. Co....	Hyattsville (Part).	27.88	68,606	5,280.49	2,460	189.58
Totals.....		466.29	1,229,081	\$75,370.98	2,636	\$161.64

Hauling Stone Chips

The results of advertising for oiling bids were so satisfactory that it was decided to also advertise for bids for hauling and delivering stone chips for covering purposes, because of the quantities required for this purpose having reached such large proportions. So far as known, this experiment had never before been tried, but the State was divided up into 16 divisions, specifications were worked out and bids advertised for. In order to secure the lowest possible prices, these tenders were opened early in the year, on March 22nd, when contractors were unoccupied, and but little work going on. Bids were received from 53 different contractors, many of them bidding on more than one county and some on the entire State. The large number of bids was surprising and included a number of local county contractors and liverymen, who submitted offers for the work in their respective counties. It is estimated that the State saved about \$8,000 this year by letting this work by contract.

CONTRACTS FOR HAULING STONE CHIPS FOR 1915

CONTRACTOR.	COUNTIES.	TONS OF CHIPS.	LETTING PRICE (CENTS PER TON MILE).	TONS PER MILE.	COST PER MILE.
Clark, Hayward Co...	Worcester.....	352	23½	53.7	\$42.35
	Somerset.....	575	27	55.4	20.98
	Wicomico.....	25	24¾	69.4	12.71
	Dorchester....	767	25	54.2	34.95
	Caroline.....	945	24¾	50.1	26.84
	Talbot.....	450	24¾	50.8	32.92
	Queen Anne's..	1180	24¾	57.9	43.86
	Kent.....	750	24¾	60.0	29.43
	Cecil.....	978	24¾	57.6	31.04
	Howard.....	1768	18¾	60.0	40.13
	Carroll.....	1143	19¾	59.0	40.16
M. J. Grove Lime Co...	Allegany.....	1148	26	60.7	87.69
J. M. Mount.....	Frederick.....	2573	20	60.8	33.15
George Geissman.....	Washington....	2184	23	58.1	51.28
Merchants' Transfer and Storage Co....	Garrett.....	1416	24½	60.7	35.79
	Montgomery....	1898	19½	61.0	38.15
Totals.....		18152	23.414	58.09	\$37.59

The quantity of stone chips used per mile had gradually been increased to 65 tons this year, when they were rolled in for the first time. A ten-ton roller was used for the purpose and the chips were rolled on every contract treated during 1915. This added to the expense of oiling, but experience shows this increased cost to be justified by the superior wearing surface obtained, and by this method much larger stone chips can be used, when necessary, on roads where the traffic is heavy and intense. Stone chips an inch in size were put on in many places and, when rolled in, gave a most excellent surface. The proportion of stone chips used should be still further augmented in 1916, and a combination of the large and small sizes should be applied on the heavy traffic roads, the larger size being spread on first and rolled in, after which a layer of pea size should be added.

As a result of these methods, the oiling in 1915 was handled with more expedition and satisfaction and greater economy than in any previous year.

Assistance was again given to the counties for the oiling of State Aid roads, an experienced oil inspector being furnished by the State.

The following table gives a recapitulation of the oiling operations by years:

(1) COST OF OILING OPERATIONS BY YEARS

YEAR.	MILES OILED.	TOTAL COST OF OILING.	AVERAGE COST OF OILING PER MILE, INCLUDING STONE CHIPS.	TOTAL TONS OF STONE CHIPS USED.	AVERAGE TONS OF STONE CHIPS USED PER MILE.	TOTAL GALLONS OF OIL USED.	AVERAGE NUMBER OF GALLONS OF OIL USED PER MILE.	ESTIMATED COST OF STONE CHIPS PER MILE, APPLIED.	ESTIMATED COST OF OIL PER MILE, WITHOUT STONE CHIPS.
1908.....									
1909.....									
1910.....	38.40	\$14,393.31	\$374.82	166.68	4.3	140,239	3,652	\$8.68	\$366.14
1911.....	100.39	36,526.42	363.84	1,057.10	10.5	400,423	3,988	16.25	347.59
1912.....	177.85	63,795.64	358.70	2,572.08	14.5	602,082	3,386	46.83	311.87
1913.....	317.23	111,245.11	350.67	12,571.88	39.6	999,009	3,149	124.47	266.20
1914.....	448.14	162,879.92	363.45	25,251.64	56.3	1,427,388	3,185	133.11	230.34
1915.....	503.78	176,972.29	351.28*	32,429.93	64.4	1,444,712	2,867	142.21*	209.07
Totals....	1,585.79	\$565,812.69	\$356.80	74,049.31	46.69	5,013,853	3,161	\$78.59	\$281.87

* Cost of rolling included.

(b) Patrol Service

A patrol system of maintenance has been developed, extended and improved, and much has been done on this organization to perfect it. It requires experience, instruction and special knowledge to patch, repair and properly maintain a macadam road, and it takes time to secure and train competent men to do this.

The patrolman is supplied with the necessary small tools, tar pots, oil, stone chips, etc., to take care of the surface of the road to which he is assigned. He is furnished with a cap, on which is written in gold letters, "STATE PATROLMAN"; a number, which he wears on his arm, and a red flag, which he places in the ground on the section on which he is working, so that if the Inspector or Resident Engineer passes over the road he knows that the patrolman is on the work that day, and that he is near where the flag is planted.

A patrolman's section ranges from 4 to 8 miles in length, this varying with the density and character of the traffic, etc. Near the densely populated districts, where the travel is exceedingly heavy, a patrolman cannot take care of more than 4 miles, whereas in outlying and less thickly settled portions he can keep in first-class condition from 7 to 8 miles. Stone chips and oil are placed at convenient intervals along the highway, and the patrolman is furnished with a wheelbarrow, with which he can transport material to any point where a break may have occurred in the surface. It is the duty of the patrolman to go over his section at least once or twice a week, and after every heavy storm to clean out any ditches or culverts which may have become clogged, to repair any breaks that may occur in the surface, to cut down the weeds along the banks, and to keep the shoulders smooth, etc. He is instructed to make repairs to the road just as soon as he notices the slightest wear, for it has been found that if this is done it is only necessary that the patrolman paint the bare spot with a little bituminous material, cover it with stone chips and tamp it with a tamper. If the surface is neglected until a hole forms, then the patrolman cleans the cavity out thoroughly, paints the sides with bituminous material, fills in stone of the proper size, tamps them down, paints over the top with bituminous material and covers it with stone chips.

There is persistently impressed upon the patrolmen the necessity of immediate repairs of the worn surface, but a great deal depends upon the man, and it is often difficult to teach them to know exactly when and how to make bituminous patches.

To assist the Resident Engineer in keeping a close watch over his patrolmen, an expert Maintenance Engineer has been developed, whose duty it is to go constantly over the roads and make reports as to the condition of each patrolman's section. This engineer must report on the physical and mental characteristics of each patrolman; the condition of his road and of his tools; the quantity of oil, stone chips and bituminous material he has on hand; how he has handled his work, etc. The efficiency of each patrolman, as well as the character of his work, can be determined by this method, which also places the office in possession of all the facts relating to the roads and to the results accomplished.

(b1) Gang System

In 1914 the gang system was established experimentally on several heavily traveled contracts, replacing patrolmen in a number of places, but it was found that the period of time required for the gang to pass from one end of the section to the other is so great that the repairs accumulating during this interval were more extensive than those which would have occurred under the patrol system. A gang consists of 6 or 7 men, with a foreman, and covers from 35 to 40 miles of road. It is equipped with the necessary steam rollers, wagons, tools, etc. This method proved slightly cheaper than the patrol system, but the general upkeep of the roads is not as good, and it cannot be recommended except under favoring conditions.

(b2) Combination Gang and Patrol System

On a number of roads the combination gang and patrol system was then tried out, and it was learned that the patrolmen could be given a larger number of miles of road after the gang had passed over it in the spring and had placed the shoulders and surfacing in good condition, and that he could then maintain the surface until the gang passed back over it again in the fall, to do the heavy work for which the patrolman does not have the proper equipment and tools. On heavily traveled roads this combination has been found to give more satisfactory and economical results than the patrol system alone. It is impossible to set any hard and fast general rule as to which of these systems should be used. Where the traffic is moderately heavy the patrol system is better, and where it is exceedingly light the combination

gang and patrol system will work well, by passing over the road in the spring, removing any slides which may have occurred from the banks, cleaning the road and putting it in first-class condition, after which the patrolman can take care of quite a long section.

The type of construction, the intensity of traffic, the topography of the country and the character of the soil all have a direct bearing as to which system of maintenance is the best for any particular road. All of these conditions should be studied carefully before determining the method of operation.

The following table shows the operations of patrolmen by years:

(1) OPERATIONS OF PATROLMEN

YEAR.	NUMBER OF PATROLMEN.	MILES. MAINTAINED.	AVERAGE NUMBER OF MILES MAINTAINED PER PATROLMEN.
1908.....	....	....	....
1909.....	....	....	....
1910.....	2	....	....
1911.....	55	305	5.50
1912.....	75	374	4.98
1913.....	107	575	5.37
1914.....	118	650	5.50
1915.....	101	600	5.94
Average.....	76	501	5.46

There were also employed from time to time, as needed for extraordinary repairs, 150 helpers to the patrolmen in 1912, 345 in 1913, 350 in 1914 and 225 in 1915.

The following table gives the maintenance costs for patrol service, for oiling, for repair work, etc., in addition to the regular oiling, etc., by years:

(2) COST OF MAINTENANCE OUTSIDE OF OILING

YEAR.	MILES MAIN- TAINED.	TOTAL COST.	AVERAGE COST PER MILE.	PATROL- MEN, HELPERS, TEAMS, ETC.	GALLONS OF OIL FOR REPAIR WORK.	COST.	TONS OF STONE CHIPS AND GRITS FOR REPAIR WORK.	COST.	BRIDGE REPAIRS.	MAIN- TENANCE ON TURN- PIKES.	TRAVELING REPAIR GANGS.	REPAIR GANGS AND PATROL- MEN'S TOOLS, ETC.
1912	374	\$63,358.99	\$169.40	\$34,947.96	39,562	\$2,999.41	3,946	\$4,970.71	\$4,037.57	\$2,937.16	\$12,099.09	\$747.09
1913	575	136,530.81	237.44	70,150.66	118,574	9,820.48	12,669	17,767.03	3,228.36	5,138.47	15,520.76	1,024.10
1914	832	136,844.10	188.51	\$5,468.26	189,074	16,116.03	21,185	24,702.66	6,395.45	6,731.27	13,426.86	3,503.57
1915	1,049	208,055.91	198.37	67,783.19	225,989	17,694.12	30,176	35,388.93	9,240.72	4,227.35	22,185.19	1,536.41
Totals	2,830	\$564,789.81	\$199.37	\$258,350.07	573,799	\$46,630.04	67,976	\$82,829.33	\$23,502.10	\$19,044.25	\$63,731.90	\$6,811.17

This table gives a computation of the average cost of the total maintenance, including oiling, patrol service, repairs, etc., by years:

(3) AVERAGE TOTAL MAINTENANCE COST PER MILE

YEAR.	
1910	}
1911	
1912	.....
1913	.....
1914	.....
1915	.....
<hr/>	
Average for whole period	.....

\$279.00
340.00
430.00
372.00
359.00
\$356.00

MAINTENANCE RECEIPTS AND EXPENDITURES TO DATE

The money available for maintenance has not, up to date, been sufficient to properly maintain our roads, for which reason a deficit has been accumulating in this account. No provisions at all were made for maintenance until 1910, when the General Assembly enacted Section 140-r, Chapter 207, which provides that of the net receipts of the Motor Vehicle Commissioner (after deducting the expenses of his office), 20% should go to Baltimore City, and that the balance should be divided for maintenance between the State and the State Aid roads, on a mileage basis. Under this Act the following sums have been received and apportioned to date:

ALLOTMENT OF RECEIPTS FROM MOTOR VEHICLE COMMISSIONER

YEAR.	NET RECEIPTS FROM MOTOR VEHICLE COMMISSIONER.	BALTIMORE CITY (20%).	*STATE ROADS.	STATE AID ROADS.
1911.....	\$ 56,209.90	\$ 11,241.98	\$ 26,576.04	\$ 18,391.88
1912.....	62,705.76	12,541.15	31,304.24	18,860.37
1913.....	144,930.25	28,986.05	74,613.76	41,330.44
1914.....	190,653.10	38,130.62	116,889.42	35,633.06
1915.....	295,859.27	59,171.85	190,344.02	46,343.40
Totals.....	\$750,358.28	\$150,071.65	*\$439,727.48	\$160,559.15

* This amount was also drawn upon for the maintenance of the Annapolis and of the Washington Boulevards.

The Legislature of 1912, upon the recommendation of the Governor, provided also for a one-cent direct annual State tax for maintenance, but unfortunately this tax was not collectible in 1912, and only \$30,996.68 was turned over from it in 1913.

There have been received by the Commission from various miscellaneous sources, such as tolls, charges for forms and permits, rents, interest, etc., certain sums, which have also been placed to the credit of the maintenance fund.

The total receipts for maintenance from all sources for State roads are shown in the following table:

(a) TOTAL MAINTENANCE RECEIPTS FOR STATE ROADS

YEAR.	FROM MOTOR VEHICLE COMMISSIONER.	FROM ONE-CENT STATE TAX.	FROM MISCELLANEOUS SOURCES.	TOTAL RECEIPTS.
1911.....	\$ 26,576.04	.....	\$ 39,631.99	\$ 96,912.27
1912.....	31,304.24	.....	
1913.....	74,613.76	\$ 30,996.68	16,878.65	122,489.09
1914.....	116,889.42	95,301.24	19,248.81	231,439.47
1915.....	190,344.02	95,893.02	39,106.02	325,343.66
Totals.	\$439,727.48	\$222,190.94	\$114,266.07	\$776,184.49

The total expenditures for maintenance have been as follows :

(b) TOTAL MAINTENANCE EXPENDITURES ON STATE
ROADS

YEAR.	EXPENDITURES.
1910 }	\$88,676.23
1911 }	
1912.....	127,154.63
1913.....	249,733.43
1914.....	309,503.98
1915.....	379,028.20
Totals.	\$1,154,096.47

The deficit on maintenance by years to January 1, 1916, is thus shown to be:

(c) DEFICITS ON MAINTENANCE OF STATE ROADS

YEAR.	RECEIPTS.	EXPENDITURES.	APPARENT DEFICIT.
1910.....	\$96,912.27	\$215,830.86	\$118,918.59
1911.....			
1912.....			
1913.....	122,489.09	249,733.43	127,244.34
1914.....	231,439.47	309,503.98	78,064.51
1915.....	325,343.66	379,028.20	53,684.54
Totals.....	\$776,184.49	\$1,154,096.47	\$377,911.98

This deficit of \$377,911.98 is only apparent and is much larger than the real deficit, for the reason that the fiscal year of the State Roads Commission ends with the calendar year, whereas the fiscal year of the Commissioner of Motor Vehicles ends April 1st, when he turns over to the State Treasurer the money for his preceding fiscal year due to the State Roads Commission for maintenance, and the one-cent State tax is payable to the State Roads Commission semi-annually, as collected, on January 1st and on July 1st. The result of this is, that the expenditures for maintenance given above for 1915 are for the calendar year ended December 31st, against which there should be an estimated unavailable balance or credit of \$180,000 for the amount due, but not payable until April 1, 1916, from the Motor Vehicle receipts, and also \$62,000 for the semi-annual receipts from the tax levy for the six months from July 1, 1915, to December 31, 1915, but which is not payable until the following day, that is, January 1, 1916. This makes a total credit of \$242,000 to the Commission on December 31, 1915, but which is not available then, because of the difference in the dates of the fiscal years, as explained above. This would reduce the total apparent deficit of \$378,000 by \$242,000 to \$136,000, which would represent the real deficit on December 31, 1915, for the full eight-year term of the Commission.

The Commission, in its Preliminary Report for 1912 and 1913, recommended to the General Assembly that the tax on motor trucks and motorcycles be increased, and prepared with care a

bill for this purpose, which was introduced in the Legislature, but was not passed by that body. Had this recommendation been carried out, it should have brought in an additional revenue in 1914 and 1915 approximating \$55,000, which would have still further reduced the deficit on maintenance to \$81,000. Had provision also been made for the maintenance of the old bridges and of the turnpikes that had not then been reconstructed, this entire deficit would have been practically wiped out. If the General Assembly of 1916 does not give proper legislation for taxing motor trucks, motor busses and motorcycles, a still larger deficit on maintenance may result in the future.

PROVISIONS FOR MAINTENANCE FOR 1916 AND 1917

The maintenance requirements for the system for the years 1916 and 1917 are approximated as follows:

(1) ESTIMATED MAINTENANCE EXPENDITURES FOR

1916 AND 1917

YEAR.	AMOUNT NEEDED.
1916.....	\$450,000
1917.....	500,000
Total.....	\$950,000

As against this, the revenues are estimated as follows:

(2) ESTIMATED MAINTENANCE RECEIPTS FOR 1916 AND 1917

RECEIPTS.	YEAR.	
	1916.	1917.
Net receipts from motor vehicles, available for State roads, under the present law.....	\$240,000	\$300,000
Future net receipts from motor trucks, if the registration tax on same is increased by the General Assembly, as has been recommended.....	45,000	60,000
Future net receipts from motorcycles, if the registration tax on same is increased by the General Assembly, as has been recommended.....	5,000	7,000
Miscellaneous net receipts from motor vehicle office.....	15,000	20,000
Total from Commissioner of Motor Vehicles.....	\$305,000	\$387,000
Receipts from one-cent State tax.....	105,000	110,000
Aggregate from motor vehicles and from State tax.....	\$410,000	\$497,000

This makes the total estimated receipts for 1916 and 1917 \$907,000.

The following table shows the estimated net deficit on maintenance for 1916 and 1917:

(3) ESTIMATED MAINTENANCE DEFICIT FOR 1916 AND 1917

YEAR.	ESTIMATED RECEIPTS.	ESTIMATED EXPENDITURES.	ESTIMATED DEFICIT.
1916.....	\$410,000	\$450,000	\$40,000
1917.....	497,000	500,000	3,000
Totals.....	\$907,000	\$950,000	\$43,000

TYPES OF ROADS

Perhaps no other State has a wider diversification of road-building conditions than Maryland, this including crossing the Allegheny Mountains in Garrett and Allegany Counties; the smaller ranges of the Blue Ridge east of there; the broken and hilly region of Central Maryland, with its variety of soils; the sandy Eastern Shore Counties, with no road-building material, and in cases with tidewater only a few inches below the surface; the broken and irregular sand and clay country of Southern Maryland, with no stone, many rivers and swamps and scant transportation facilities; the expenditure of several million dollars in paving city streets in and around Baltimore, with a population of nearly three-quarters of a million; the designing and construction of a number of large bridges, etc.

In carrying out this great undertaking, close study has been given to adopting the types of our roads, as far as is consistent with a system of modern highways, to the resources of the State, and to the physical characteristics, the traffic requirements, and the wishes of the people in the several parts of same. As a result, these vary from sand-clay roads in Southern Maryland to the highest class of street improvements in Baltimore City.

Generally speaking, the types of roads vary greatly, according to the availability of material, the character of soil, the intensity of traffic and the topography of the country.

In Western Maryland operations have been largely confined to macadamizing the old National, Frederick and other turnpikes, the stone roadbeds being resurfaced with five or six inches of new hard stone, thus making a highway which compares very favorably with our standard macadam. In 1912 contractors would not bid on this class of work except on a percentage basis, but a plan has since been devised, whereby a large mileage in that section has been built by contract on a unit basis. Near Green Ridge, in the mountains east of Cumberland, where the cost of hauling in a stone suitable for macadam would be excessive, seven miles have been built of shale, which is found in quantities in that vicinity. This makes a smooth and comparatively inexpensive road, similar to that through the Delaware Water Gap in Pennsylvania. It is not costly to maintain, and is soft only in the wet spring months, when it is little traveled. Through the Allegheny Mountains much local material had to be used, as the long hauls over the mountains made the importation of other materials so excessive that the cost of the roads would have been prohibitive. Limestone was used where it could be secured at a reasonable cost, and where it could not be thus had, local sandstone, which had been exposed to the weather, or a hard variety that was found at the foot of the mountains, was utilized and bound together with a bituminous product.

In Southern Maryland macadam roads are expensive to build because of no stone and poor means of transportation, and public sentiment there has preferred gravel or sand-clay roads, with a larger mileage for the same money. When the proper combination of these materials can be had these highways meet the present traffic demands of that section fairly well, especially if rolled when laid. Pains have been taken, and considerable expense incurred, to relocate and shorten these routes; to take out the many small curves of the old roads; to reduce the heavy grades on the clay hills, in some instances from 20% to 4%, and to otherwise improve and give these thoroughfares character. Where the right kind of gravel and sand could be found at a reasonable cost, some concrete has been laid on the main routes in this part of the State.

Throughout Central Maryland water-bound macadam, bituminous macadam, concrete, bituminous concrete and a small quantity of brick and asphalt have been used.

On the Eastern Shore the conditions are favorable to water-bound macadam roads, and where they have been well con-

structed, oiled and maintained some of the finest thoroughfares of this character in the country can be found, many of them being better at the end of four or five years than when first built. However, macadam roads are expensive to maintain at the best, and it is absolutely essential that they be constructed of the highest grade material and that they be treated every year or two with a heavy oil to protect them from the ravages of motor traffic. In this section, too, have been built about 100 miles of the finest examples of concrete road construction in the State, these including a beautiful stretch of 29 miles from Salisbury to Ocean City.

In Baltimore City and its suburbs standard asphalt, vitrified brick and granite block have been laid on the heavily traveled streets, under standard specifications.

Oyster shells have been found unsuitable for modern State roads and are not being used, except in one or two special cases as the first or bottom course for a stone macadam surface.

A separate chapter on the construction of concrete roads follows, because of the importance of the subject.

CONCRETE ROADS

The cost of maintaining macadam, gravel, sand-clay and bituminous roads is such that Chairman Weller and Chief Engineer Shirley soon after their induction in office in 1912 made a careful study and investigation of a more substantial type of construction, especially of concrete, this including a personal examination of the concrete roads of Wayne County, Michigan. Several experimental sections of these roads, aggregating in length 3 miles, were laid in the summer and fall of that year on the Baltimore-Washington Boulevard, and in Charles and Cecil Counties. In 1913, 6 additional miles were constructed, 116 in 1914 and 65 in 1915, making a total to date of about 190 miles. These roads have been subjected to heavy traffic and the cost of maintaining them has been almost negligible. When the building of this type of road was started it was new to most of our contractors and bids on the concrete varied from \$1.30 to \$1.50 per square yard. However, with more experience in this class of work and better equipment facilities, contractors have become more familiar with the handling of concrete and the price has dropped from a maximum of say \$1.50 in 1912 to a minimum of 90 cents in 1915.

Great care must be exercised in the laying of concrete roads, especially to see that the materials used are of the best. The sands and cements should be thoroughly tested and the laying of



VIEW SHOWING MAINTENANCE OF ROAD BETWEEN KENNEDYVILLE AND CHESTER-TOWN IN KENT COUNTY.



DAMAGE DONE TO ROAD SURFACE IN WASHINGTON COUNTY DURING PAST SEASON BY TRACTION ENGINE EQUIPPED WITH SHARP CLEATS.



VIEW SHOWING MAINTENANCE OF WASHINGTON BOULEVARD IN HOWARD COUNTY.



DAMAGE DONE TO OILED SURFACE OF ROAD BY TRACTION ENGINE EQUIPPED WITH SHARP TEETH, IN HOWARD COUNTY.



VIEW OF ROAD OVER SENECA HILL IN MONTGOMERY COUNTY.



VIEW SHOWING RELOCATION AROUND SENECA HILL, IN MONTGOMERY COUNTY,
TO ELIMINATE HEAVY GRADE.



VIEW SHOWING SECTION OF MARION-HOPEWELL ROAD, IN SOMERSET COUNTY,
PREVIOUS TO CONSTRUCTION AND BEFORE REMOVAL OF BUILDINGS.



VIEW SHOWING COMPLETED SECTION OF MARION-HOPEWELL ROAD, IN SOMERSET
COUNTY, AFTER REMOVAL OF BUILDINGS TO ELIMINATE DANGEROUS CURVE.

the road should be carefully done. There is no type of road which requires greater care in the building than concrete, for when it is once completed very little change can be made in it, unless the surface is completely destroyed and rebuilt.

The cost of maintaining these concrete roads has been so small that the Commission feels that the building of so many miles of them has been of great benefit to the State and will greatly reduce the burden of maintenance. With reasonable attention, these roads should last many years. In fact, if a bituminous covering is applied after the concrete surface has worn a certain amount, they should last indefinitely. Most of the concrete roads built during the last two years have not been covered, as it was found unnecessary to cover them for a period of 4 or 5 years under normal traffic and that after this period a bituminous coating adheres very much better than if applied when the road is first completed. This also saves the cost of this surfacing for that period. In many places on the Eastern Shore concrete has been laid at a lower cost than macadam, because all material used in the construction there has to be transported long distances at a high freight rate and the tonnage of material used in concrete is considerably less per mile than in macadam.

PAST AND FUTURE OPERATIONS

The following table shows the surplus or deficit, in each county of the State, up to January 1, 1916, viz:

FINANCIAL CONDITION OF COUNTIES

COUNTY.	SURPLUS OR OVERDRAFT OF ALLOTMENT.
Allegany.....	\$5,018.04
Anne Arundel.....	1,823.88
Baltimore.....	2,144.62
Calvert.....	1,158.57
Caroline.....	5,701.68
Carroll.....	1,905.07
Cecil.....	2,357.43
Charles.....	13,650.18
Dorchester.....	19,259.63*
Frederick.....	1,888.01
Garrett.....	491.73
Harford.....	2,256.51*
Howard.....	1,291.67
Kent.....	476.93
Montgomery.....	1,779.93
Prince George's.....	9,964.48

Queen Anne's.....	1,822.97
St. Mary's.....	9,239.54*
Somerset.....	3,514.32
Talbot.....	1,096.82
Washington.....	5,611.23
Wicomico.....	17,656.44
Worcester.....	3,208.97
Total.....	\$51,807.29
Baltimore City.....	127,492.14
Total including Baltimore City.....	\$179,299.43

* Figures indicate excess of expenditures over allotments.

The following table gives the uncompleted secondary gaps in the system, with their mileage and estimated cost, for the construction of which money has not been appropriated, and also uncompleted work in Baltimore City, viz:

UNCOMPLETED SECONDARY GAPS

COUNTY.	LOCATION.	MILES.	ESTIMATE OF COST.
Anne Arundel..	Mt. Zion—Hill's Bridge.....	6.50	\$78,000
Baltimore.....	Old Court Road—North Branch (Liberty Road).....	6.50	80,000
Carroll.....	Bridgeport—Taneytown.....	3.50*	40,000
	Westminster—Fountain Valley Turnpike (Resurfacing).....	1.94	12,000
	Westminster—Fenby Turnpike (Resurfacing) ing).....	2.50	15,000
Cecil.....	Octorora Creek—Rising Sun.....	4.25	55,000
	Calvert—Singerly.....	8.00	96,000
Charles.....	Mason Springs—Ripley.....	4.20	26,000
	Faulkner—Wayside.....	5.66	35,000
Dorchester.....	Big Mill—Linkwood.....	4.55	52,000
Frederick.....	Thurmont—Emmitsburg (Resurfacing)....	8.50	60,000
	Woodsboro and Emmitsburg Pike (City Limits of Frederick—Harmony Grove)..	2.50	18,000
	Emmitsburg—Bridgeport.....	5.00*	55,000
	Knoxville—Washington County Line....	0.61	10,000
Howard.....	Ellicott City—Columbia.....	2.00	12,000
	Elioak—Snell Bridge.....	7.64	85,000
Kent.....	Chestertown—Melitota Road.....	2.15	25,000
Montgomery...	Olney—Snell Bridge.....	6.60	70,000
Somerset.....	Pocomoke—Westover.....	8.50	110,000
	Allen, towards Princess Anne.....	0.23	9,000
Wicomico.....	Vienna—Mardella.....	4.00*	52,000
Worcester.....	Stockton—Pocomoke.....	4.50	54,000
	Totals.....	99.83	\$1,049,000

* Not in original system of State roads.

UNCOMPLETED GAPS, BALTIMORE CITY

Park Heights Avenue—	
Keyworth Avenue—City Limits.....	\$37,500
Liberty Heights Avenue—	
Earl Avenue—Calloway Avenue.....	82,000
Western Maryland Railway Crossing (Liberty Heights Avenue)—	
Half cost of two-track crossing 50-foot arch.....	10,500
Total.....	\$130,000

The following table sets forth the small incorporated towns forming links in the system, through the main streets of which State roads have been built during 1914 and 1915, because of the financial inability of the towns to do this themselves. The rule of the Commission has been to build through these towns the same type of State road as adjacent thereto, but when a higher type of construction has been desired by the town, as in Hancock, Washington County, and in Centreville, Queen Anne's County, the Commission has co-operated with the town authorities, the latter paying the extra cost over our construction:

INCORPORATED TOWNS BUILT THROUGH

COUNTY.	TOWN.	LENGTH (Miles).	COST.	KIND OF SURFACING.
Cecil.....	Northeast.....	0.47	\$5,144.97	Concrete.
	Chesapeake City..	1.14	12,548.91	"
	Cecilton.....	0.96	9,329.01	"
	Perryville.....	0.20	2,473.93	"
	Fredericktown...	0.20	2,642.95	"
Frederick.....	Middletown.....	1.14	9,292.00	Macadam.
	New Market.....	0.66	4,750.35	"
Garrett.....	Grantsville.....	0.85	8,593.77	"
Kent.....	Galena.....	0.74	9,113.17	Concrete.
Montgomery.....	Gaithersburg.....	1.20	15,388.03	Macadam.
Queen Anne's.....	Church Hill.....	0.67	10,269.20	"
	Centreville.....	0.83	1,053.37*	Concrete.
Washington.....	Hancock.....	1.00	10,213.15*	"
	Clearspring.....	0.45	6,543.04	Macadam.
	Boonsboro.....	0.76	9,216.99	"
	Funkstown.....	0.66	12,000.00	Concrete (under construction).
Totals.....	.....	11.93	\$128,572.84	

* Part paid by State Roads Commission.

The following table shows the small incorporated towns similar to the foregoing, forming links in the system, through the main streets of which State roads have not been built by the Commission, because of lack of funds in the respective counties:

INCORPORATED TOWNS NOT BUILT THROUGH, BECAUSE OF LACK OF FUNDS

COUNTY.	TOWN.	LENGTH (Miles).	ESTIMATED Cost.
Frederick.....	Jefferson.....	1.14	\$12,000.00
Carroll.....	Sykesville.....	0.80	8,500.00
Prince George's.....	Upper Marlboro.....	1.02	11,537.20
Charles.....	La Plata.....	0.75	7,500.00
Harford.....	Aberdeen.....	1.29	12,270.00
Cecil.....	Rising Sun.....	0.60	6,000.00
Kent.....	Chestertown.....	0.90	10,000.00
Caroline.....	Preston.....	0.47	4,936.25
	Greensboro.....	1.00	11,171.08
Dorchester.....	Hurlock.....	0.63	6,062.45
	East New Market.....	0.74	7,270.75
Wicomico.....	Sharptown.....	1.00	11,000.00
Totals.....		10.34	\$108,247.73

INCORPORATED TOWNS HAVING AN UNCOMPLETED GAP WITH THE STATE ROAD SYSTEM

There are a number of towns in the system, a list of which is given below, which have extended their corporate limits out so far as to leave an uncompleted gap to connect them with our system, viz:

COUNTY.	TOWN.	LENGTH (Miles).	ESTIMATED Cost.
Frederick.....	Frederick.....	0.38	\$4,500.00
Montgomery.....	Rockville.....	0.75	7,500.00
Harford.....	Belair.....	0.70	7,000.00
Cecil.....	Elkton.....	1.15	12,500.00
Worcester.....	Berlin.....	1.25	14,000.00
	Snow Hill.....	0.50	6,000.00
Totals.....		4.73	\$51,500.00

LARGE INCORPORATED TOWNS WITH UNCOMPLETED GAPS IN THEM

COUNTY.	TOWN.	LENGTH (Miles).	ESTIMATED COST.
Allegany.....	Frostburg.....	1.10	\$15,000
	Cumberland.....	0.75	10,000
Washington.....	Hagerstown.....	1.75	25,000
Carroll.....	Westminster.....	2.10	30,000
Howard.....	Ellicott City.....	0.75	8,000
St. Mary's.....	Leonardtown.....	0.75	9,000
Harford.....	Havre de Grace.....	1.50	14,000
Talbot.....	Easton.....	1.50	22,000
Caroline.....	Denton.....	0.50	7,000
	Federalsburg.....	1.25	16,000
Wicomico.....	Salisbury.....	2.50	35,000
Somerset.....	Princess Anne.....	1.25	18,000
	Crisfield.....	1.25	18,000
Worcester.....	Ocean City.....	0.25	4,000
Totals.....		17.20	\$231,000

The following table shows, by counties, the uncompleted gaps or spurs laid out by the Commission in 1909, which are not a necessary part of the main arterial system, they being neither main gaps nor secondary gaps. Their location and length is given herewith, with an estimate of what it would cost to build them.

**UNCOMPLETED SPURS OR GAPS LAID OUT IN 1909 BUT NOT
FORMING A NECESSARY PART OF THE MAIN
ARTERIAL SYSTEM**

COUNTY.	LOCATION.	MILES.	ESTIMATE OF COST.
Anne Arundel....	Glenburnie—Priest Bridge Road....	13.50	\$135,000
	Priest Bridge—Camp Parole.....	10.50	122,000
	Hardesty to State road near South River.....	7.75	90,000
Baltimore.....	Verona—Penna. Line (York Road)..	12.00*	100,000
	Park Heights Avenue, Caves Road north to Black Rock.....	14.00	140,000
	Northwest from Cub Hill—Union- ville.....	5.00	50,000
	Philadelphia Road (Back River— Rossville).....	4.00	40,000
Dorchester.....	Church Creek—Bishophead.....	25.00	325,000
Garrett.....	Oakland—Red House.....	4.25	51,000
Kent.....	Fairlee—Rock Hall.....	7.75	90,000
Montgomery.....	Dawsonville—Frederick County Line, via Dickerson.....	10.00	135,000
	Clarkville Pike (Sandy Springs— Glenmont).....	6.50	65,000
	Largo—Hardesty.....	8.80	107,000
Prince George's...	From near Bladensburg—Priest Bridge.....	14.50	170,000
	Church Hill—Dudley's Corner.....	5.50	60,000
Queen Anne's....	End of Contract SM-9—Point Look- out.....	3.75	25,000
Talbot.....	Stumptown—Trappe.....	4.75	61,000
	Easton—St. Michael's.....	10.50	105,000
Washington.....	Weaverton—Harper's Ferry.....	2.84	40,000
	Crampton Gap to near Beelers Sum- mit.....	1.50	20,000
	State Road east of Boonsboro south to Weaverton.....	12.75	180,000
Wicomico.....	End of Contract No. 74—Quantico..	4.50	55,000
	Salisbury—Worcester County Line..	10.00	120,000
	From near Wango north to Pittsville.	4.50	60,000
Worcester.....	Powellsville, north—Willards.....	4.75	63,000
	Pocomoke—Virginia Line.....	3.33*	40,000
	Snow Hill—Stockton.....	8.50	105,000
	Wicomico County Line to Queponco.	7.00	85,000
Totals.....		227.72	\$2,639,000

* Part not in original system as outlined.

BRIDGES IN STATE ROADS SYSTEM NEEDING RECONSTRUCTION

On the system of 1,285 miles of road as laid out in 1909 there yet remains to be reconstructed 26 bridges. Most of these structures are long and across navigable streams. With the exception of three or four, they are old wooden structures, having a carrying capacity of only 3 or 4 tons. Some of them are in a weak and dangerous condition and should be replaced as soon as possible. These bridges have been divided into four general classes as follows:

CLASS "A"

Bridges which should be replaced during 1916 and 1917:

COUNTY.	LOCATION OF BRIDGE.	ESTIMATED COST.
Allegany.....	Town Creek.....	\$15,000.00
*Anne Arundel.....	Severn River.....	300,000.00
Baltimore.....	Western Run (York Road).....	14,000.00
Cecil.....	Bohemia River.....	167,000.00
	Elk River.....	30,000.00
Kent and Queen Anne's..	Chester River.....	185,000.00
Montgomery.....	Seneca Creek.....	17,000.00
Total.....		\$678,000.00
	* Less money in hand for construction of Severn River Bridge.	300,000.00
		\$378,000.00

CLASS "B"

Bridges which can be made to last a year or two under light loads:

COUNTY.	LOCATION OF BRIDGE.	ESTIMATED COST.
Allegany.....	15-Mile Creek.....	\$14,000.00
Anne Arundel.....	South River.....	220,000.00
Baltimore.....	Gunpowder River (Belair).....	20,000.00
Cecil.....	Northeast Creek.....	15,000.00
	Back Creek.....	100,000.00
Dorchester.....	Marshy Hope Creek.....	100,000.00
Worcester.....	Sinepuxent Bay (Ocean City).....	200,000.00
Total.....		\$669,000.00

CLASS "C"

Bridges which may last from 3 to 4 years with a capacity of about 6 tons:

COUNTY.	LOCATION OF BRIDGE.	ESTIMATED Cost.
Allegany.....	Narrows Arch.....	\$40,000.00
Baltimore.....	Herring Run (Belair Road).....	25,000.00
	Gunpowder River (York Road).....	16,000.00
Cecil.....	Principio Creek.....	12,000.00
Cecil and Kent.....	Sassafras River.....	107,000.00
Charles.....	Zekiah Swamp.....	15,000.00
Dorchester and Wicomico.	Vienna.....	215,000.00
Frederick.....	Catoctin Creek (Middletown).....	20,000.00
	Catoctin Creek (Jefferson).....	30,000.00
Somerset and Worcester...	Pocomoke City.....	80,000.00
Total.....		\$560,000.00

CLASS "D"

Bridges in fair condition, but which are designed for light loads, their capacity being not more than 10 tons, and which will have to be replaced eventually:

COUNTY.	LOCATION OF BRIDGE.	ESTIMATED Cost.
Cecil and Harford.....	Susquehanna River (Wooden part) . . .	\$30,000.00
Washington.....	Licking Creek.....	35,000.00
Total.....		\$65,000.00
Grand total for four classes.....		\$1,672,000.00

SUMMARY

Class "A".....	\$378,000.00
Class "B".....	669,000.00
Class "C".....	560,000.00
Class "D".....	65,000.00
Total.....	\$1,672,000.00

During 1915 extensive investigations have been made of practically all the bridges in the above list to determine their proper location, the character of bottom by core borings and test piles, and the economical design to be used, so as to secure a comparatively accurate estimate of what it will cost to replace each bridge with a permanent structure.

RECORD OF CORE BORINGS AND TEST PILES, 1914-1915

LOCATION.	CORE BORINGS.		TEST PILES.	
	No.	Total Feet.	No.	Total Feet.
Severn River.....	22	6338	15	814
South River.....	22	8321	19	1207
Bohemia River.....	14	1067	13	837
Sassafras River.....	10	727	11	649
Back River.....	5	462	4	212
C. and D. Canal.....	2	196	..	....
Chester River.....	15	1300	17	1063
Nanticoke River (Vienna).....	10	1032	..	....

BRIDGES

Standard plans have been made for all bridges of spans up to 36 feet in length and it is only necessary for the Resident Engineer to investigate the foundations, then refer to the standard plan and select the type of foundation that will fit the location and conditions and take off the length of spans. The water shed is carefully figured up by the Resident Engineer when he makes his preliminary inspection and it is afterwards checked by the Engineer of Surveys. On old roads all openings of the old bridges and culverts are carefully noted, the high-water mark established and the storm areas computed. On spans exceeding 36 feet separate designs are worked up for each individual case. Where difficult foundations are encountered test borings are made and in deep water test piles are often driven. Bridge work is much varied, on account of streams being wide, and in many places the water is deep and navigable, requiring draw spans.

The numerous streams throughout the State require many bridges and in many places soft mud is found from 30 feet to 65 feet in depth, which makes foundations expensive and work difficult.

The following is a list of the bridges which have been erected from 1912 to 1915, for which plans have been prepared by the Department of Surveys:

STATE ROAD BRIDGES CONSTRUCTED 1912-1915

YEAR	CONTRACT	STATION	LOCATION	LENGTH	COST
1912	033	575	Hunting Creek, Calvert County...	2 25' girder.....	\$2,234.58
1912	035	....	Sea-wall, Calvert County.....	1120'.....	15,000.00
1913	0178	....	Winter's Run, Belair Road.....	2 27' arches.....	2,876.60
1913	SM-7	502	St. Mary's River.....	2 25' girders.....	3,052.00
1913	BC-3-Br.	22	Gwynns Falls, Frederick Road...	2 100' arches.....	74,000.00
1914	B-14-a	433	Patapsco River, Frederick Road...	2 56' spans—arches. 1 72' span —arches.}	16,894.86
1914	B-15	216	Gwynns Falls, Liberty Road.....	65' span arch.....	11,965.00
1914	B-6	104	Little Gunpowder, Belair Road...	2 30' span girder....	4,547.15
1914	C-7-a	32	Sea-wall and bridge, Calvert Co..	560'.....	10,760.50
1914	F-17	Pole 540	Emmitsburg Pike.....	2 30' span girder....	3,024.40
1914	G-12	1120	Bear Creek (Keyser-Accident)....	2 25' span girder....	3,125.25
1914	0234	90	Seneca Creek (Gaithersburg-Germantown).....	3 30' span girder....	4,607.80
1914	Q-10	510	Tuckahoe River (Church Hill-Goldsboro).....	2 25' span girder....	2,401.05
1914	Wo-6	1368	Herring Run (Berlin-Ocean City)..	2 25' span girder....	5,528.50
1915	049-D	385	Stony Run (Perryville-Northeast).	2 30' span girder....	2,521.80
1915	Ch-11	162	Port Tobacco (Ripley-La Plata)...	2 25' span girder....	2,300.00
Total cost.....					\$164,839.49
ANNAPOLIS BOULEVARD					
1914	AB-5-Br.	....	College Creek.....	17 25' span girder 1 53' span draw....	\$45,322.69
Total cost.....					\$45,322.69*
WASHINGTON BOULEVARD					
1914	08	....	Anacostia River.....	2 43' 6" 2 46' 0" arches.....	\$8,195.00
1914	07	....	Eastern Run.....	4 32' girders.....	7,984.55
1915	05-Br.	....	Patapsco River.....	2 100' arches.....	26,000.00
Total cost.....					\$42,179.55

* Draw span included.

STATE AID BRIDGES CONSTRUCTED 1912-1915

YEAR	CONTRACT	STATION	LOCATION	LENGTH	COST
1913	261	3	Patapsco River, Finksburg Road..	3 25' span girder....	\$4,584.70
1913	240	10	Choptank River (Denton-Willow Pond).....	195'.....	32,834.07*
1913	266	6	Miles River.....	1075'.....	58,543.00*
1913	233	3	Monokin River, Princess Anne Road	32' arch.....	2,583.00
1913	289	..	Trippe's Creek } Peach Blossom	14 25' span girder }	38,226.08
1913	289	..	Peach Blossom } Road	20 25' span girder }	
1913	252-Br.	..	Elkton-Berksdale Road.....	75' arch.....	4,570.66
1913	237	..	Northwest Branch, Blair Road....	55' arch.....	6,480.75
1914	311	0	Mason's Branch, Bridgetown Road	2 40' arches.....	1,959.51
1914	288	20	Hillsboro Bridge.....	2 30' span girder....	4,703.00
1914	266-A	4	Miles River Retaining Wall.....	366'.....	4,608.00
1915	334	0	Jarmon's Branch.....	3 15' span slab.....	2,128.70
1915	334	89	Mason's Branch.....	2 36' span girder....	3,772.60
1915	328	Rebuilt	North Branch, Liberty Road.....	140'.....	8,819.00
1915	291	62	Little Youghiogheny (Oakland-Gortner).....	3 30' span girder....	4,940.60
Total cost.....					\$178,753.67

* Draw span included.

TOTAL COST OF BRIDGES BUILT 1912-15.

State Road.....	\$164,839.49
State Aid.....	178,753.67
Annapolis Boulevard.....	45,322.69
Washington Boulevard.....	42,179.55
Total cost.....	\$431,095.40

HANOVER STREET BRIDGE

Communication from Ferry Bar, Baltimore City, to Anne Arundel County, prior to 1856, was by ferries running to a number of points. By authority granted under Acts of 1856, Chapter 215, Laws of Maryland, Richard O. Crisp and Richard Cromwell, Jr., were given the right to build a toll bridge from Ferry Bar across to Brooklyn, Anne Arundel County. This bridge was operated until 1880, when it was purchased by the Mayor and City Council of Baltimore City and the County Commissioners of Anne Arundel County at a cost of \$3,500. In 1891 it was reconstructed of timber at a cost of about \$156,000, and this structure (known as the Light Street bridge), with very extensive repairs, has remained in use up to the present time. The traffic passing over it to Southern Maryland and Annapolis has increased so greatly that a larger, more modern and more permanent bridge has become imperative. The city of Baltimore voted on a bond issue in

1913 for \$2,000,000 to replace this bridge, but the loan was defeated by popular vote. In 1914 the Legislature appropriated \$1,600,000 to be used in Baltimore City from the State road loan, under Chapter 267, by the State Roads Commission, to erect a new bridge along the lines of the present Light Street Bridge, or from the foot of Charles or Hanover Streets, to the point of land in Baltimore County, thence by a street across the point of land in Baltimore County to the Patapsco River and across the Patapsco River by a fill and bridge to First Street, Brooklyn, Anne Arundel County. If there was any unexpended balance remaining, the same was to be spent on paving streets in Baltimore City. In compliance with this Act, the State Roads Commission made an investigation as to the most logical location for the bridge and after exhaustive studies and a number of conference with the United States Engineer's Office, as well as with those interested, it was decided to construct the bridge from the foot of Hanover Street. This was done so as to interfere as little as possible with the commerce of the harbor and throw below the bridge a very much larger area which could be used for harbor purposes and give a great deal more pier frontage below the bridge so that vessels plying in this locality would not have to pass through the draw, which has a clear opening of 150 feet.

The construction of this bridge is divided into thirteen sections:

Sections Nos. 1 and 2, for the construction of the sub and superstructure of the bridge across the main harbor from the foot of Hanover Street to the point of land in Baltimore County, a total distance of 2,265 feet, is being completed under a contract awarded August 14, 1914, to H. P. Converse & Company, of Boston, Massachusetts.

Section No. 3, for the construction of the four operators' houses for the lift span, has been awarded (July 6, 1915) to the West Construction Company of Baltimore, Maryland.

Section No. 4, for the construction of the lift spans over the main channel, was awarded September 21, 1914, to the Strobel Steel Construction Company, of Chicago, Illinois.

Section No. 5 (as Section 9), for the approach fill at the Baltimore City end of the bridge, was completed by Howard Firor, contractor, Baltimore, Maryland.

Section No. 6, for the paving of the entire bridge and approaches, has been awarded (January 25, 1915) to P. Flanigan & Sons, Baltimore, Maryland.

Sections Nos. 7 and 8 embrace the construction of the two small bridges over the main branch of the Patapsco River between Baltimore and Anne Arundel County. The contract for this work was awarded on January 25, 1915, to the McLean Contracting Company, of Baltimore, Maryland.

Contract No. BC-20 was awarded September 21, 1914, to the Luck Construction Company, of Roanoke, Virginia, and includes the heavy cut and fill between the Baltimore County end of the main structure and Anne Arundel County.

Contract No. BC-21, for filling under the arcade on the city end of the bridge, was awarded September 21, 1914, to H. P. Converse & Company, Boston, Massachusetts.

Contract No. BC-22 was awarded November 18, 1914, to the Maryland Dredging & Contracting Company, Baltimore, Maryland, for dredging the channel leading to the main opening in the bridge structure.

The contract for the lighting will probably be awarded in the near future.

The contract for the drainage of section in cut across Baltimore County will be awarded this spring and completed prior to the paving of this section.

The total length of the new construction, from the foot of Hanover Street to First Street, Brooklyn, is 8,600 feet, or 1.62 miles.

The bridge will have a clear roadway of 50 feet, with two 8-foot sidewalks. The elevation of the floor is 45 feet above the water and the opening of the draw span is 150 feet in the clear.

A very close investigation was made of the bottom for Sections Nos. 1, 2, 7 and 8 and solid bottom was encountered at approximately 100 feet below the surface of the water, which was from 4 to 28 feet deep in the channel, with 50 feet of soft mud. Then came strata of gravel and sand, then clay and then a layer of gravel to solid bottom.

The sub-structure for the retaining wall and arcade of Section No. 1 consists of Georgia long-leaf pine piles driven from 75 to 100 feet below the surface of the water and filled around with gravel and sand up to five feet above the water. The concrete footings of the piers were carried down to -25 and -35 and rested on piles driven anywhere from -75 to -100. Owing to the great depth of soft mud, the foundations were difficult and extraordinary care had to be taken with the building and bracing of the cofferdams.

The superstructure, or Section No. 2, consists of a retaining wall resting on piles, a long arcade and 12 cantilever spans with a Rall type bascule bridge for the channel. The arches are arranged symmetrically with respect to the draw span. The cantilever design was adopted on account of the soft mud and treacherous bottom and economical construction, and while it has the appearance of a true elliptical arch the construction is a true cantilever and all the stresses and strains were computed accordingly.

The live load is for two 50-ton electric cars, one on each track, with two 4-wheel trucks; on the roadway two 24-ton trucks and on the sidewalks 100 pounds per square foot. The spans of the superstructure consist of 10 arch ribs composed of structural steel, the steel being made strong enough to carry the dead load of the concrete and the forms. The steel arch ribs were made at Sparrows Point and floated to the site of the bridge on lighters and lifted into place by heavy derricks. Nuts to the anchor bolts were screwed down, forms placed and the concreting begun. This made the erection exceedingly simple and no underbracing whatever was necessary.

The design of the bridge was worked up under the supervision of Mr. J. E. Greiner, consulting engineer, Baltimore, Maryland.

The total cost of the main structure, including paving, lighting, drawbridge, etc., ready for traffic, will be about \$900,000.

It was necessary to dredge a new channel, as one of the piers of the draw span stood directly in the old channel, and 175,000 cubic yards of earth had to be removed at a cost of \$20,000 so as to arrange the new channel to fit the draw opening.

A contract was awarded for cutting through the point of land in Baltimore County and making the fill across the Patapsco River, which is about 5,800 feet long, including both cut and fill. Approximately 200,000 cubic yards of earth were removed from the cut and placed in the fill. The cut, at the deepest point, was 45 feet. The section of fill from the Baltimore County side of the 500-foot bridge over the channel of the Patapsco River was placed over a very soft bottom and settled at periods, from June, 1913, to October, 1915, but at the writing of this report the fill seems to have reached solid bottom and there has been no appreciable settlement within the last sixty days. During the settlement of the fill a large quantity of mud was pushed up on each side and quite a large area of land formed adjacent to the fill. The total cost of making the cut and fill, paving and lighting this part of the work will be approximately \$115,000.

A contract was awarded to the McLean Contracting Company for building a 500-foot span across the channel of the Patapsco River and a 100-foot span bridge near First Street, Brooklyn, Anne Arundel County. The superstructure of this bridge is of the reinforced concrete girder type, the reinforcement requires no underbracing, it being of structural steel, and the forms are attached directly to it, as it is strong enough to support the dead load of the concrete and the forms. These bridges are of the same width as Section No. 2, namely, 50 feet clear roadway, with two 8-foot sidewalks, with the necessary conduits and gas mains. It is designed to carry the same load as the main bridge and will have a clear opening between mean high water and the bottom of the girders of 9 feet, so as to permit motor boats to pass through. The sub-structure consists of Georgia long-leaf pine piles, driven to approximately -75 feet and cut off at -5 feet; the footings for the concrete piers start at -7 feet.

The cost of these sections, including paving, etc., will be \$130,000. It is estimated that the total cost of the entire job will be \$1,200,000. This is the largest piece of work the Commission has undertaken since its creation and when completed will be the largest reinforced concrete highway bridge in the State and one of the most difficult pieces of bridge engineering construction in the country.

COLLEGE CREEK BRIDGE

The old wooden bridge that spanned an arm of the Severn River, known as College Creek, extended from the foot of King George Street to the Government Farm on the north side of Annapolis. It was originally constructed by the United States Government in 1890 for the benefit of the citizens of Annapolis and Anne Arundel County and dispensed with the road that passed through the Government Farm and around the cemetery to its present location. This bridge was 616 feet long, 18 feet wide in the clear and had a draw on a pivot pier with two 24-foot openings. The County Commissioners of Anne Arundel County on April 23, 1890, accepted from the United States Government the bridge and maintained it until March 10, 1914, when the Acts of the General Assembly, under Chapter 32, was passed, requiring the State Roads Commission to take this bridge in charge and assume jurisdiction over it. In the meantime plans and specifications had been prepared and a contract was let on March 22nd to the McLean Contracting Company for the recon-

struction of the College Creek bridge, the sub-structure being of reinforced concrete piles capped, on which rests seventeen 25-foot reinforced concrete girder spans with a bascule lift bridge having a clear opening of 40 feet. The total length of this bridge is 489 feet with 127 feet of approach fills.

The total cost of the work, including the draw span, approaches, roadway, electrification, etc., was \$45,322.69.

SHARPTOWN BRIDGE

By Chapter 116 of the Acts of 1910, called the "Public Highways 1910" Act, provision was made by the General Assembly for the erection of a bridge across the Nanticoke River from Dorchester County to Sharptown, in Wicomico County. Plans and specifications were accordingly prepared by the Commission and the contract for the structure was let on July 31, 1911, to the Roanoke Bridge Company, of Roanoke, Virginia, the lowest bidder.

The bridge is of steel, with a draw span of the swinging type resting on a cylindrical pier, on which it revolves. The draw was originally operated by hand, but in 1913 an electric motor was installed to furnish the motor power. The approach spans to the draw are of the plate girder type on twin cylinder piers resting on piles.

The bridge proper is 651 feet long, the approach in Dorchester County 3,100 feet and the draw span 200 feet, making a total length over all, including approaches, of 3,901 feet. The roadway has a clear width of 18 feet and the draw two openings of 75 feet in the clear each. It was completed on November 20, 1912, at a total cost of \$72,539.54, of which \$57,213.92 was for the bridge proper and \$15,325.62 for the approaches, etc., not including the concrete surfacing.

TRIPPE'S CREEK AND PEACH BLOSSOM CREEK BRIDGES

An application was made in 1913 by the County Commissioners of Talbot County for the construction of the Trippe's Creek and Peach Blossom Creek bridges and a section of the Peach Blossom Road leading from Easton south toward Trappe Station, a distance of 2 miles. The Peach Blossom bridge is over Peach Blossom Creek, a branch of the Tred Avon River, and the bridge over Trippe's Creek spans a branch of the same river, which is known as Trippe's Creek.



BIRD'S-EYE VIEW SHOWING SECTION OF THE HANOVER STREET BRIDGE ACROSS MIDDLE BRANCH.



VIEW OF BRIDGE OVER PATAPSCO RIVER, ELLICOTT CITY, BALTIMORE COUNTY,
DESTROYED BY FIRE.



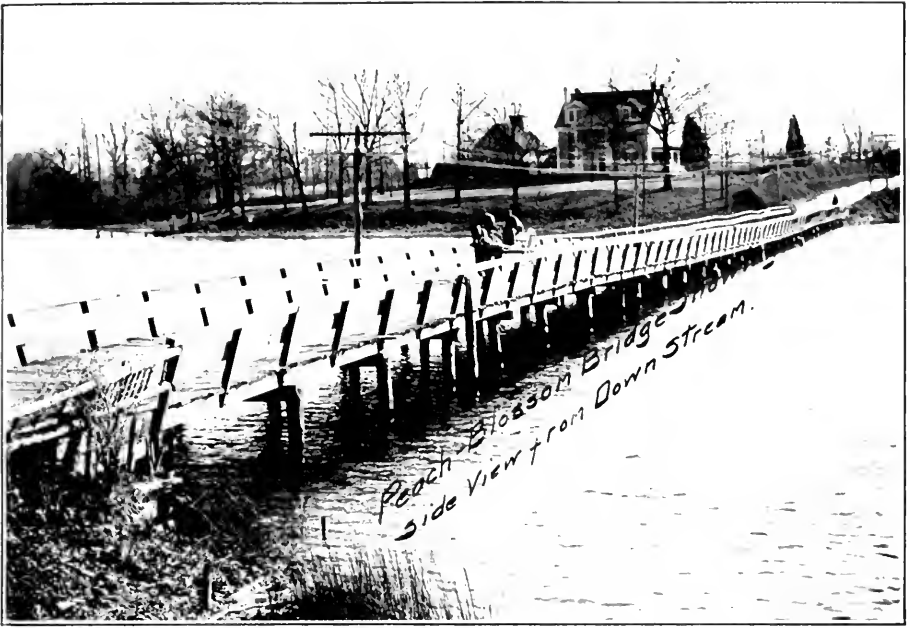
VIEW OF NEW BRIDGE, ELLICOTT CITY, BUILT TO REPLACE THE ONE DESTROYED
BY FIRE.



VIEW OF HILLSBORO BRIDGE, CAROLINE COUNTY, BEFORE CONSTRUCTION.



VIEW OF HILLSBORO BRIDGE, CAROLINE COUNTY, AFTER CONSTRUCTION.



PEACH BLOSSOM BRIDGE IN TALBOT COUNTY, BEFORE IMPROVEMENT.



PEACH BLOSSOM BRIDGE IN TALBOT COUNTY, AFTER IMPROVEMENT. BUILT UNDER STATE AID LAW.

Plans were prepared by the State Roads Commission and bids asked for by the County Commissioners and the contract for both bridges was awarded to Mr. S. P. Angle, who submitted the lowest bid, which amounted to \$37,026.08.

These bridges were constructed to take the place of the old wooden pile bridges, with wooden deck floors that had become decayed, were in a weak and dilapidated condition and were absolutely unsafe for traffic. The type of construction used for the bridge over Trippe's Creek was wooden piles, on which rested concrete piers, taken down below the bed of the river so that no portion of the piles would be exposed to any marine insects. The superstructure of the bridge was composed of fourteen 25-foot reinforced girder spans. The total length over all is 350 feet and has a clear roadway of 16 feet.

The construction of the Peach Blossom bridge consists of reinforced concrete piles for the sub-structure, capped above the water with 20 spans 25 feet each of the concrete girder types, having a concrete floor slab and an open hand-rail.

The total length of the bridge over all is 500 feet and the width is 16 feet in the clear.

It may be of interest to know that quite a clever story appeared in the *Sun* in the story contest and took the first prize, the scene of which was laid about the old Peach Blossom bridge.

MILES RIVER BRIDGE

This bridge is located about 2 miles west of Easton, crossing an arm of the bay known as Miles River, and connects that section of Talbot County between the Wye River and Miles River directly with Easton. There was originally constructed at this point an old pile bridge which had become very weak, the piles having been practically destroyed by toredos. An application was made under the State Aid Law by the County Commissioners of Talbot County in 1912 for the reconstruction of this bridge and the building of 2 miles of road. This application was approved, plans and specifications were prepared and bids were asked for with permission for the bidders to submit alternate plans and bids. The Raymond Concrete Pile Company of Baltimore City submitted an alternate bid for concrete pile construction, with a slab floor system, and this company's design was accepted, its bid being the lowest.

The total length of this bridge is 1,075 linear feet, with a clear roadway of 16 feet, and has a Scherzer rolling lift bridge for the

draw span which has a clear opening of 40 feet for the channel.

The total cost of the concrete approach spans to the draw was \$52,468.15 and the cost of the draw span was \$6,075.96, making the total cost of the bridge amount to \$58,544.11.

One of the interesting features of the construction of this bridge was that the entire bridge, with the exception of the caps for the piles and posts for the hand-railing, was moulded in Baltimore City and transported to the site of the bridge and placed in position. The piles were driven with a steam hammer and the slabs were placed in position with a large derrick erected on a scow. This made the construction very simple and this method was adopted owing to the limited amount of space that could be secured on each side of the river for storing materials, etc.

This bridge was paid for half by the State and half by the county.

DENTON-WILLOW POND BRIDGE

Communication between Hillsboro District and Denton, Caroline County, before 1878 was first by a ferry across the Choptank River and then by an old wooden bridge that was erected by a company and used as a toll bridge. This bridge was replaced by a steel structure in 1878, being operated as a toll bridge also up until the 1880's, when it was bought by Caroline County and made a "free" bridge.

In 1913 Caroline County petitioned the State Roads Commission to rebuild this bridge with a section of road under the State Aid Law. Plans were accordingly prepared for a concrete bridge with a steel lift span, and the work advertised and let, the contract being signed June 20, 1913. The construction of the concrete approaches was awarded to the Holt Construction Company of Denton, Maryland, and the steel lift span to the Scherzer Rolling Lift Bridge Company, of Chicago, Illinois. The total length of the bridge is 195 feet, including the Scherzer Rolling Lift draw, which has a clear opening for the channel of 60 feet. The construction of the approach spans is of reinforced concrete girder type with a clear roadway of 24 feet and has a 6-foot sidewalk. The draw is electrically operated and requires about $\frac{3}{4}$ of a minute to open and $\frac{3}{4}$ of a minute to close—in all, $1\frac{1}{2}$ minutes to open and close the lift.

The cost of the concrete approach spans to the draw was \$21,452.07, the cost of the draw being \$11,382.71, making a total cost of \$32,834.78.

ELLCOTT CITY BRIDGE ON FREDERICK TURNPIKE OVER
PATAPSCO RIVER

The original bridge over this river was built along with the turnpike soon after the authorization by the Legislature in 1812 and was maintained until the flood of July 24, 1868, when it was washed away. The bridge was reconstructed the following year. This structure was built of white pine timber covered with a shingle roof and weatherboarded sides. It consisted of two spans each 100 feet long. This bridge remained until it was destroyed by fire in June, 1914. How the fire started will, perhaps, never be known, though probably it was of incendiary origin. The structure being of thoroughly dry timber burned very rapidly and was totally destroyed.

A temporary crossing was immediately made and within 24 hours traffic was again passing over the river. The Commission decided to rebuild the bridge of concrete and a three-span arch was designed. The center span was 72 feet and the two end spans were each 56 feet. The clear roadway was 20 feet with a walk 4 feet wide on one side. The site of the bridge was changed somewhat to give a better approach to the town. The angle from the pike over the bridge was decreased about 30 degrees and a new right-of-way had to be purchased. The entire cost of the bridge was \$16,894.86, including the back fill and walkway surface.

LIBERTY ROAD BRIDGE OVER GWYNNS FALLS

The date of the erection of the original bridge on this site is not available, as there were no records kept of it, and the time antedates the memory of the oldest inhabitant.

When the Liberty Turnpike was surveyed and reconstructed in 1861 the old bridge was repaired and strengthened and remained until the flood of 1868, when it was washed away. During the same year it was reconstructed of timber, on dry masonry abutments at a higher level, by the turnpike company. The length of the bridge was then 148 feet and was maintained for this length until the reconstruction of the road by the State Roads Commission in 1913, when it was replaced with a concrete arch having a clear span of 65 feet. The remaining portion of the old span was filled in with earth and the slope protected by rock, which was excavated from the hill beyond.

This is one of the many examples of how money has been needlessly expended for a period of many years on the maintenance of timber bridges, which are unnecessarily long, to accommodate the water which passes through them.

The cost of the arch was \$11,966, exclusive of the back fill, which was made of material excavated for the line beyond to reduce the grade from a 7 to 6%.

FREDERICK ROAD BRIDGE OVER GWYNNS FALLS

When the Commission improved the Frederick Turnpike between the old and new city limits of Baltimore a relocation was made at Gwynns Falls to benefit the alignment and grade of the road. The old bridge crossed the falls at right angles, but in doing so made a very bad bend in the line at the east end. Though the bridge was rebuilt and raised several times, the old alignment was maintained until the Commission relocated it in 1913.

The original timber bridge was built along with the turnpike and was maintained until 1889, when it was reconstructed of steel and the grade raised about 10 feet. In 1904 the Western Maryland Railway Company, in the construction of its Tidewater branch, passed on the bank of the stream and placed a second span adjacent to the one over the stream.

The Commission's improvement consisted of straightening the alignment and building a double 100-foot span concrete arch 47 feet above the stream bed, and 14 feet above the grade of the old bridge which materially decreased the grades on the approaches. The span over the railroad provides for four tracks, with a clearance of 21 feet 9 inches over all the tracks. The bridge is located in the new Gwynns Falls Park, and especial attention was given to the architectural features. The cost of the concrete structure, exclusive of back fill, was \$86,994.31, and the back fill and approaches cost \$12,028.78.

BALTIMORE AND WASHINGTON BOULEVARD

The earliest records relative to the road between Baltimore and Washington pertain to the section from Baltimore to Elkridge, which was laid out in 1741, and from there went into Southern Maryland. About 1749 the gap from Elkridge to Washington was opened up, as was that from Baltimore to the Susquehanna River, thus making a continuous route from Washington to Philadelphia and the North. In describing a trip over this

road, an early writer stated that after a road was once laid out by the people of Maryland they never took pains to keep it in good repair, the roads in this State being worse than in any other in the Union.

This continued until 1796, when a company was incorporated to build a turnpike road between Baltimore and Washington, but nothing was accomplished until 1812, when the Baltimore-Washington Turnpike Company was organized, and built a road 60 feet wide between these cities. This company remained in existence until 1865, when the road was condemned and the company's charter nullified, for not keeping the road in proper repair. The thoroughfare was then turned over to Prince George's, Howard and Baltimore Counties, and was maintained by them as a county road until 1906, when the General Assembly appropriated \$30,000 for that year, and \$30,000 to be used annually during each of the fiscal years of 1907 and 1908, for the construction of portions of it as a State road, to be known as "State Road No. 1." In 1908, under Chapter 304, an additional appropriation of \$8,000 per year was made for the years 1908, 1909 and 1910, and in the latter year \$50,000 was provided to be used in 1911 and \$50,000 in 1912. This Act also provided that the road should be located between Contee and Beltsville, to avoid two dangerous grade crossings. These sums were under the control of, and expended by, the State Geological and Economic Survey until June 1, 1910, when the further construction of the highway was turned over to the State Roads Commission. By the Acts of 1912, Chapter 370, Section 17, \$200,000 was assigned out of the bond issue of \$3,170,000 for the completion of this boulevard. By the Acts of 1914, Chapter No. 267, \$50,000 additional was provided for its construction and maintenance during the years 1914 and 1915.

The entire boulevard for its full length has now been completed from the city limits of Baltimore to the city limits of Washington, a distance of 29.95 miles, the total distance from the City Hall in Baltimore to the Capitol Building in Washington being 37.70 miles. The types of construction used were macadam, gravel and concrete. A number of sections of macadam on this road, constructed under the State Aid Law previous to being taken over as State Road No. 1, which were 12 feet wide and only 6 inches thick, had to be rebuilt. Owing to the heavy traffic passing over the boulevard, these sections became very weak, and were unable to withstand the intensity of the traffic. There was also a section

of gravel-macadam road built on this boulevard as an experiment, but this likewise had to be replaced, as it would not stand the heavy traffic.

The grade crossing of the P. B. & W. R. R. Co. at Winans has been eliminated by the erection of an overhead bridge at an expense of \$69,500, the State paying \$10,540, and the railroad company paying approximately \$59,000.

Also, the dangerous grade crossing through the town of Elkridge has been replaced by the Baltimore and Ohio Railroad Company by an undergrade crossing of the B. & O. tracks to the north of Elkridge.

The two dangerous crossings to the south of Laurel, at Contee and Beltsville, have been eliminated by relocating the road parallel to the railroad tracks and to the west of the railroad tracks between these two points.

ELKRIDGE BRIDGE

This bridge is over the Patapsco River, on the Baltimore-Washington Boulevard, between Baltimore and Howard Counties, at Elkridge. In early days this crossing was made by a private ferry, which was owned by Edward Norwood, and was known as the "Norwood Ferry." Operations on the turnpike between Baltimore and Washington were begun in 1812, and the December session of the General Assembly in 1815 authorized the erection of a toll bridge at this point. In the meantime the ferry had passed into the hands of Dennis A. Smith, who was granted a license in 1817 to erect a timber bridge, and to collect toll for passage over it. It remained a toll bridge until 1869, when its then owner, Moncure Robinson, sold it to Baltimore and Howard Counties for \$5,000, and it was then made a free bridge. It was washed away by the great flood of 1889, and was rebuilt of steel, with two spans 100 feet long. In 1891 high water came up over the floor, after which the elevation of the bridge was raised two feet. It remained thus until July 6, 1915, when the State Roads Commission made a contract with A. J. Boyle, of Baltimore, Maryland, for its reconstruction, which is now under way. It is being replaced with a concrete arch of two spans, each 98 feet long. The old stone masonry piers and abutments were encased in concrete, and the arch sprung from them. The height of the bridge has been raised about five feet, making it 20 feet above the river at mean low water. It is interesting to note that in 1815 the river at this point was navigable for commerce, while

at this time the water surface is five feet above the elevation of mean tide further down the river. The new bridge will probably be completed by June 1, 1916.

The cost of the bridge complete, including back fill, surfacing, lighting, etc., is \$27,000.

EASTERN RUN AND ANACOSTIA RIVER BRIDGES

Owing to the great increase in traffic on the Baltimore-Washington Boulevard after its completion, and the great increase in the weight of the loads, and the speed at which they were carried, the two iron bridges—one over Eastern Run, between Hyattsville and Bladensburg, and the other to the west of Bladensburg over the Anacostia River—had become very much weakened, and it was necessary to replace the old iron structures with new bridges. A contract was accordingly let on October 17, 1913, to G. W. Arnold, of Glyndon, Maryland, for the construction of the bridge over Eastern Run, which has four 34-foot spans, and is of concrete girder construction. This bridge is 24 feet in width from curb to curb, and has one 5-foot sidewalk. The contract was completed April 28, 1914, at a total cost of \$11,226.78.

Bids were asked, and a contract was awarded on April 6, 1914, for the Anacostia River Bridge, which is of the arch type design, having two arch spans, each 43 feet 6 inches in length, and two, each 46 feet in length, the bridge being 199 feet over all, and having a clear roadway of 22 feet. It was built by the Luten Bridge Company, of York, Pennsylvania. This bridge was completed on October 15, 1914, at a total cost of \$11,619.70, and replaced a 4-span pony truss iron bridge which had become weakened by the heavy traffic. Both new bridges were designed to carry the heaviest motor truck with a large factor of safety.

The total cost of the work on the boulevard up to date has been \$628,553.21.

STATE AID WORK

The State Aid Law passed in 1904 was carried on by the Maryland Geological and Economic Survey until June, 1910, when it was transferred to the State Roads Commission. Under the provisions of this Act, 50% of the cost of the road is borne by the State, 40% by the County Commissioners and 10% by adjacent property owners. Surveys, plans and specifications are prepared

by the State Roads Commission, the work is advertised and let by the County Commissioners of the respective counties, and the actual construction work is done under the supervision of the State. After its completion and acceptance, the work is turned over to the county for maintenance, to which a certain proportion of the Motor Vehicle Fund is applied.

The Commission has made special efforts in those counties which had not availed themselves of the appropriation made under this law to have them apply for the allotment due their counties, and at the present time work is either going on or has just been completed in every county of the State with the exception of Calvert County, which has not up to date availed itself of its allotment under this Act.

There has been more work either under construction or completed in 1915 under this Act than in any previous year, and the demands now being made for work under this law far exceed the appropriation of \$300,000. A number of counties have issued bonds to meet their part of the cost of the work. By the extension of this law, many roads can be improved, which will connect up with the State road system, and a system of cross roads can be established which will make a complete system of main roads and cross roads throughout the State.

To make the present law more workable, and to obtain more efficient results, certain changes should be made. These changes were embodied in a bill presented to the Legislature by the Commission in 1914. A careful study was made by the Commission after a number of consultations with the different counties, and a copy of the law submitted to the Legislature was universally agreed on by them to be the most workable law embodying the essential features of the State Aid Law that could be passed.

The tables showing the detailed cost of State Aid work from 1912 to 1915, inclusive, will be found in the back of this report, under Exhibit "C."

ALLEGANY COUNTY

This county has been very progressive in availing itself of the State Aid Law, and has made 31 applications, covering 34 miles of road, of which 27 miles have been completed. The Road Directors' requests have been for more money under the allotment and re-allotment than it was possible for the State Roads Commission to give under the appropriation now available for the State aid work, and in a number of instances the county has

financed the State's part of the work until a subsequent allotment was available, at which time the county was reimbursed. This shows that State aid in this county is very popular, and the Road Directors have availed themselves to the fullest extent under the law.

The maintenance, until last year, had been fairly well kept up, but from the first of 1915 the roads were neglected and not oiled in the early spring as they should have been, and they were rapidly going to pieces. However, the Road Directors made a number of repairs the latter part of this season, and have made plans, which, if carried out early next spring, will put the roads in good condition.

ANNE ARUNDEL COUNTY

Since 1912, 9.45 miles of road have been built in this county out of a total number of 10.79 miles requested in 11 applications. This has used up the entire allotment and re-allotment given this county. The general type of construction used has been of the most durable, with the exception of a few contracts, and the maintenance of the roads has been very well kept up.

BALTIMORE COUNTY

This county made 15 applications covering 28 miles of road, of which 20 miles have been built. Included in these applications was the Liberty Road Bridge over North Branch, which connects this county with Carroll County, and the cost of its construction was borne jointly between the State, Baltimore County and Carroll County. On July 8, 1914, the old wooden bridge at this point was burned and Carroll and Baltimore Counties requested that it be rebuilt under the State Aid Law, as the road on the Carroll County side was being built under this law. The State Roads Commission approved their application, and the bridge was built to take the place of the one that was burned.

The types of construction used in this county were macadam, concrete and asphalt.

The maintenance of the roads in most instances has been fairly well kept up, but last season quite an important change was made in the handling of this work inasmuch as an appropriation was made at the first of the year to cover the necessary repairs, which was turned over to the roads engineer with authority to make such repairs as could be made with this amount. If the amount set aside could be made large enough to cover the cost of the

necessary repairs, all these roads would soon be put in first-class condition.

The traffic in this county is exceedingly heavy, especially on State and State aid roads, and the maintenance is expensive.

CALVERT COUNTY

No roads have been constructed in this county under the State Aid Law, although there have been 4 applications made covering 6.5 miles of road, of which surveys, plans and estimates have been made and sent to the County Commissioners, but no work has been let. It is hoped that this county will appropriate sufficient funds to meet its allotment under this law in the future.

CAROLINE COUNTY

This county has made 16 applications covering 29 miles of road, of which 12 miles have been built or are under construction. Several large bridges were included in these applications, viz: the Denton-Willow Pond, Mason's Branch and Hillsboro Bridges. The Denton-Willow Pond is a drawbridge, and connects the roads of the Hillsboro District with the town of Denton, and was rebuilt of reinforced concrete with a Scherzer trunnion bascule draw, electrically operated. This county has availed itself of all State aid allotments and is willing to take up all money coming to it from re-allotments.

The types of construction used have been shell, macadam and concrete.

The maintenance of the roads is very good and they are being kept up.

CARROLL COUNTY

Seven applications have been made by Carroll County in which were requested 9.5 miles of road. Of this amount 9.22 miles have been built. Included in these is the application made jointly with Baltimore County for the reconstruction of the Liberty Road Bridge over North Branch. The type of construction used has been standard macadam. The roads are being well maintained and are in good condition. The county has availed itself annually of its full allotment. All roads in Carroll County were let by contract.

CECIL COUNTY

This county has taken its full allotment of the State Aid fund, and has issued bonds to meet its part of the cost. Four applica-

tions have been made, covering 8.15 miles of road, of which 7.15 miles have been built.

The general types of construction have been concrete and macadam.

The up-keep of the State aid roads in this county has been only fair, and closer attention should be paid to this most important matter in the future.

CHARLES COUNTY

This is one of the counties which, for a number of years, did not avail itself of the State Aid Law. In 1912, however, this county made application for one mile of road and since that time there has been a total of 5 applications made, covering 5 miles of road, of which 2.4 miles have been built.

The general type of construction is gravel, which is about the only available local material that can be secured.

The roads built up to date have been so recently completed that very little maintenance has been required.

DORCHESTER COUNTY

This county has made 11 applications requesting 24.35 miles of road, of which 19.96 miles have been built or are under construction. The types of road are concrete, bituminous concrete, macadam and shell.

Dorchester County has availed itself of all its State aid allotments and re-allotments, and has done considerable work during the last four years under the State Aid Law. A number of sections have been built by the county using its own teams and forces.

The maintenance is good and the roads are being kept up.

FREDERICK COUNTY

Several short stretches of State aid road were built in this county prior to 1912, but since that time they have made application for 15 miles of road in 5 applications, of which 5.39 miles have been built or are under construction. The Brunswick-Petersville Road, now under contract, requires very heavy work, and when completed will connect Brunswick with the Knoxville-Frederick State Road to Petersville, and will be one of the most important roads in the county.

The maintenance has been looked after and the roads are in fair condition.

GARRETT COUNTY

Prior to 1912 two applications were made for work in this county, but no work had been undertaken until a contract was let for 3 miles of road from Oakland south to Gortner. Another application, however, has been made for three additional miles of road, leading from Grantsville north to the Pennsylvania State line, on which plans are now being prepared, and will be sent the County Commissioners with specifications and estimates ready for advertisement.

No maintenance of State aid roads has been necessary in this county as the road from Oakland to Gortner has not been fully completed. Included in the construction of the Oakland-Gortner Road there is a large reinforced concrete bridge having three 30-foot spans over the Youghiogeny River.

HARFORD COUNTY

This county has made nine applications, requesting 15.67 miles of road, of which 15.63 miles have been built, and the general type of construction used has been macadam. All the work has been done by contract.

The maintenance has not been well kept up, and there should have been more oiling of the roads that are heavily traveled with motor cars. The roads where traffic is heavy should be shaped up and given a surface treatment of bituminous material and stone chips early in the spring.

HOWARD COUNTY

St. John's Lane and Lawyer's Hill Road, comprising 3.87 miles, have been built out of 5.50 miles applied for in 3 petitions. The county avails itself of its full allotment and has constructed from time to time several sections of macadam road.

The maintenance is fair, but by more frequent repairs could be greatly improved.

KENT COUNTY

No State aid work had been done in this county until 1912, when an application was made for surfacing with shell the Betterton-Still Pond Road, a distance of approximately 4 miles. Three applications were made, covering 9.75 miles of road, of which 6.53 miles are now under construction.

The maintenance on the Betterton-Still Pond Road, which is the only one that has been under maintenance, has been looked after and kept up.

MONTGOMERY COUNTY

This county has taken advantage of all the State aid funds that could be allotted to it, both from the allotments and re-allotments, and has applications filed for some time ahead. They have made applications requesting 26.60 miles of road, of which 18.98 miles have been built or are under construction. This county took advantage of the last appropriation made by Congress for experimental road purposes and in conjunction with the State and Federal Government built 5.40 miles of road, each paying one-third of the cost. Owing to the geographical location of this county, being just north of Washington, the traffic is very heavy and the maintenance is expensive, and has not been kept up to the highest standard. During the past season, however, quite a good deal of maintenance work was done and a number of roads were put in good condition. If the plans as outlined by the County Commissioners are carried out in the early spring, all the State aid roads will be repaired and put in shape.

PRINCE GEORGE'S COUNTY

This county has made three applications, requesting 3.6 miles of road, of which 2.54 miles have been built or are under construction. Construction in this locality consists of gravel, macadam and concrete.

The maintenance is not closely looked after and the county has not availed itself of its full allotment of the State aid money.

QUEEN ANNE'S COUNTY

There have been 10 miles of road built in this county out of the 13 miles applied for. All the work, with a few exceptions, has been done by the county's forces, and at the State's approximate estimate. The types of construction are macadam and shell, and the maintenance has been well kept up. The roads are in good condition.

All allotments of the State aid funds made to this county have been taken up.

ST. MARY'S COUNTY

This county has made two applications requesting 3 miles of road, of which 1.18 miles is under contract through the town of Leonardtown. This is the only State aid work done in this county, and was started in 1915. The type of construction is gravel, and as no State aid roads have been completed, there has been no maintenance required up to date.

SOMERSET COUNTY

Of the 4.75 miles of road applied for in three applications, 4.01 miles have been built, and the type of construction used is concrete.

There has been but little maintenance required to date, and the roads are in good condition.

TALBOT COUNTY

This county has availed itself of all the State aid funds it could secure, and in a number of instances anticipated allotments from the State and financed the total cost of the work. Bond issues have been made to cover the county's part of the cost of building certain bridges, viz: the Miles River, Peach Blossom, Trippe's Creek and a portion of the Hillsboro Bridge. All the bridges built have been of reinforced concrete construction. The Miles River Bridge is one of the longest built under the State Aid Law, and has a draw span of the Scherzer Rolling Lift type.

The types of construction used are macadam, shell and concrete.

The roads have been gone over and the maintenance is in fair condition.

WASHINGTON COUNTY

Only two short pieces of road had been built in this county up until 1915, when 15 applications were made, requesting 21.99 miles, of which 15 miles have been built or are under contract. This county did not avail itself of the State Aid Law for a number of years, but last year it asked for quite a large amount, which will take up both its allotment and re-allotment.

The maintenance of the roads heretofore built has been fair, and they are in fair condition.

WICOMICO COUNTY

This county has taken up all its State aid allotment, and since 1912 has made five applications, covering 9.12 miles of road, of which, including some former applications, 11.46 miles of road have been built or is now under construction.

The types of construction used in this county are shell and macadam.

The maintenance of the roads has been looked after and a number of them were oiled during the past season.

WORCESTER COUNTY

There have been built, or under construction, in this county, 4.38 miles of road covered by previous applications, and two applications were made during the period from 1912 to 1915, requesting 3 miles of road. The general types of construction used have been shell and macadam, and the maintenance has been fairly well kept up.

PLANS AND SURVEYS

The Department of Surveys was organized in 1912, and has charge of making all surveys, plans and estimates for bridges and roads, all test borings, soundings and the testing of all stone, brick, sand, gravel, cement, bituminous materials, pipe culverts, paints, etc.

Close studies are made of the location of all roads, and preliminary surveys are made of all possible lines, but frequently very careful surveys, plans and estimates are necessary to determine which of several routes is the best and the most economical. The expense of moving 100 or 150 cubic yards of earth is from \$50 to \$70, and equals the cost of making a mile of survey, so it can readily be seen that the money laid out for investigations, surveys, etc., is well expended, as large construction expenditures may be saved by changes in alignment or grade.

The chiefs of party are instructed when making surveys to confer with the Resident Engineer in whose territory they are working, and to investigate all relocations, so as to put the road where the best grades and alignment will be secured, bearing constantly in mind the final cost of the route. Considerable expense and trouble has been experienced in securing the rights-of-way for the relocation of an old road, and in many places it is almost impossible under the present law to secure the proper rights-of-way in any kind of reasonable time, so as not to hold up construction. On this account, surveys and plans have to be made far in advance of actual construction, which in many cases is impractical.

The following tables will give the number of miles of road surveyed, and plans and estimates prepared for the period 1912 to 1915 inclusive:

TOTAL SUMMARY OF SURVEYS ON STATE ROADS, 1912-1915

YEAR	MILES OF PRELIMINARY SURVEYS, INCLUDING RELOCATIONS	MILES OF RESET STAKES, RE-CROSS SECTIONS, AND WORK OF THIS NATURE	MILES OF FINAL SURVEYS
1912.....	152.64	34.88	121.37
1913.....	171.24	76.03	82.02
1914.....	193.05	152.47	182.10
1915.....	68.35	48.34	243.33
Totals.....	585.28	311.72	628.82

TOTAL SUMMARY OF SURVEYS ON STATE AID ROADS, 1912-1915

YEAR	MILES OF PRELIMINARY SURVEYS, INCLUDING RELOCATIONS	MILES OF RESET STAKES, RE-CROSS SECTIONS, AND WORK OF THIS NATURE	MILES OF FINAL SURVEYS
1912.....	54.74	8.41	20.93
1913.....	72.26	16.62	9.88
1914.....	32.05	20.65	48.86
1915.....	161.49	17.44	59.23
Totals.....	320.54	63.12	138.90

TOTAL SUMMARY OF SURVEYS ON ANNAPOLIS BOULEVARD,
1912-1915

YEAR	MILES OF PRELIMINARY SURVEYS, INCLUDING RELOCATIONS	MILES OF RESET STAKES, RE-CROSS SECTIONS, AND WORK OF THIS NATURE	MILES OF FINAL SURVEYS
1912.....	.....	.....	13.54
1913.....	0.91	.....	.....
1914.....	4.39	0.78	.....
1915.....	1.78	.....	4.75
Totals.....	7.08	0.78	18.29



VIEW OF SECTION OF PEACH BLOSSOM STATE AID ROAD IN TALBOT COUNTY.



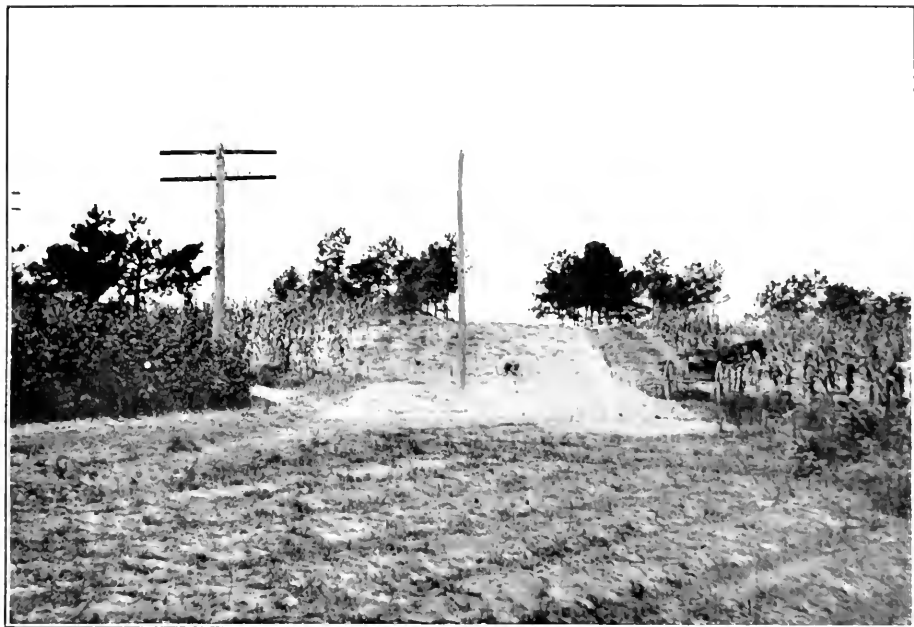
VIEW SHOWING MAINTENANCE OF STATE ROAD, NEAR EASTON, IN TALBOT COUNTY.



VIEW OF THE OLD NATIONAL ROAD, NEAR HANCOCK, IN WASHINGTON COUNTY,
BEFORE CONSTRUCTION.



VIEW OF THE OLD NATIONAL ROAD, NEAR HANCOCK, IN WASHINGTON COUNTY,
AFTER CONSTRUCTION.



VIEW SHOWING SECTION OF SALISBURY-BERLIN ROAD, IN WICOMICO COUNTY,
BEFORE CONSTRUCTION.



VIEW SHOWING SECTION OF SALISBURY-BERLIN ROAD, IN WICOMICO COUNTY,
AFTER CONSTRUCTION.



VIEW OF SALISBURY-BERLIN ROAD, WORCESTER COUNTY, BEFORE CONSTRUCTION.



VIEW OF SALISBURY-BERLIN ROAD, WORCESTER COUNTY, AFTER CONSTRUCTION.

TOTAL SUMMARY OF SURVEYS ON BALTIMORE AND WASHINGTON
BOULEVARD, 1912-1915

YEAR	MILES OF PRELIMINARY SURVEYS, INCLUDING RELOCATIONS	MILES OF RESET STAKES, RE-CROSS SECTIONS, AND WORK OF THIS NATURE	MILES OF FINAL SURVEYS
1912	6.31	9.63	2.84
1913	2.26	.....	8.56
1914	0.36	0.91	0.27
1915 .....	.....	.....	1.40
Totals	8.93	10.54	13.07

TOTAL SUMMARY OF SURVEYS ON STATE ROADS, STATE AID ROADS,
ANNAPOLIS BOULEVARD AND BALTIMORE-WASHINGTON
BOULEVARD, 1912-1915

ROAD	MILES OF PRELIMINARY SURVEYS, INCLUDING RELOCATION	MILES OF RESET STAKES, RE-CROSS SECTIONS, AND WORK OF THIS NATURE	MILES OF FINAL SURVEYS	TOTALS (Miles)
State Roads	585.28	311.72	628.82	1525.82
State Aid Roads	320.54	63.12	138.90	522.56
Annapolis Boulevard...	7.08	0.78	18.29	26.15
Baltimore-Washington Boulevard	8.93	10.54	13.07	32.54
Totals	921.83	386.16	799.08	2107.07

TOTAL SUMMARY OF ESTIMATES ON STATE ROADS, STATE AID ROADS, STATE ROAD No. 1 AND
ANNAPOLIS BOULEVARD, 1912-1915

YEAR	STATE ROADS			STATE AID ROADS			STATE ROAD No. 1		ANNAPOLIS BOULEVARD	
	Actual Miles	Aggregate Miles of Estimates and Alternate Estimates	Actual Miles	Aggregate Miles of Estimates and Alternate Estimates	Actual Miles	Aggregate Miles of Estimates and Alternate Estimates	Actual Miles	Aggregate Miles of Estimates and Alternate Estimates	Actual Miles	Aggregate Miles of Estimates and Alternate Estimates
1912.....	94.39	130.95	38.83	51.28	5.03	8.57	.....	.....	.....	.....
1913.....	188.35	312.72	69.95	167.59	4.47	4.96	.....	.....	.....	.....
1914.....	442.53	820.16	75.65	165.52	1.29	1.29	3.88	7.64	3.88	7.64
1915.....	53.19	85.17	150.24	314.59	0.23	0.23	5.43	13.63	5.43	13.63
Totals.....	778.46	1,349.00*	334.67	698.98*	11.02	15.05*	9.31	21.27*	9.31	21.27*

* Increase in mileage due to the fact that alternate estimates were made on two or more kinds of surfacing on a number of contracts.

TESTING DEPARTMENT

Testing materials which enter into construction work is of prime importance, though until a comparatively recent date great stress has not been laid on it. The Commission has a well-equipped department devoted to this work and at the same time a large amount of research work is done.

In 1912 the Commission's laboratory was equipped to test bricks for paving work, slag and stone for macadam, gravel for road surfacing, slag, stone, gravel and cement for concrete work, and in April, 1913, a laboratory was installed for the testing of the lighter tars and asphalts used for surface treatments of macadam and for the heavy asphalts used in hot mixed asphaltic surfaces.

The brick rattler is the standard as prescribed by the American Society for Testing Materials. It is octagonal in shape, 20 inches long and 27½ inches in diameter. It is charged with 300 pounds of round cast iron shot ranging from 3.75 inches to 1.875 inches in diameter. This rattler is then charged with ten paving blocks, which have been previously marked and weighed, and the whole turned 1,800 revolutions in an hour and the bricks are again weighed and the percentage of loss recorded. The whole charge must not lose more than 22% nor any block more than 28%. The individual loss is not ascertained in most laboratories and most specifications require only an average loss not to exceed a certain limit. If the pavement is to wear uniformly, the bricks in it must be of a uniform quality and for this reason it is essential to show the loss of each block as well as that of the whole charge.

Stone is tested in a standard American Society for Testing Materials rattler, which consists of a cylinder 8 inches in diameter and 14 inches long, which is supported from opposite corners, so that when it revolves the stone gets a sliding motion as well as a rotary one. This cylinder is charged with 50 pieces of stone of fairly uniform size, weighing in the aggregate 5,000 grams, and rattled for 10,000 revolutions at the rate of 2,000 per hour. The weight is then again determined and the loss in grams divided into 20, which gives the French coefficient of wear.

The specifications require that for macadam limestone must show a coefficient of not less than 10 and trap rock not less than 12. The coefficient of cementation is determined by making the dust formed in the rattler into briquettes and when dry recording the number of blows required to destroy them. The method is as follows:

The dust is mixed with a definite amount of water and enough to make a very stiff paste. This is then put into a mold and subjected to a pressure of 5,000 kilograms. The briquettes must be 25 millimeters in diameter and 25 millimeters high. The briquettes are then dried in air for about two weeks and tested to destruction. This consists of striking them with a hammer weighing 1 kilogram allowed to fall 1 centimeter. The number of blows required is the coefficient of cementation.

For gravel roads the specifications permit the use of gravel which contains certain percentages of material smaller than $\frac{1}{4}$ inch, so gravel is tested by passing the gravel over a screen and determining the percentage which goes through and that retained.

The coarse aggregate for concrete is examined to ascertain whether it is free from structural defects and foreign material and whether the grading is in accordance with the requirements of the classes of work.

The sand for concrete presents quite a problem, principally because poor or unsatisfactory sand has always been used for concrete work, and the contractors, and more especially the owners of sand pits, cannot understand why local sand will not do for the work. The use of cement mortars and concrete coming as it did, after lime mortars, simply meant to most people the substitution of cement for lime with the same sand. The sand for lime mortars is better by the addition of loam or clay, while these elements in large quantities are very detrimental for concrete work, so the selection and testing of sand for concrete has been a process of education as much as the securing of satisfactory sand for the work.

Sand must be free from vegetable matters of all kinds and contain only a small percentage of clay, loam or an excess of fine materials. The Commission's specifications require that the sand shall contain less than 3% of material passing a 100-mesh screen. Sand is tested by sieving through a graduated set of sieves in which the graduation is 100, 80, 60, 40, 20, 10 meshes to an inch. By having these sieves nested and sieved by a mechanical shaker, the whole graduation is obtained by one operation. Vegetable matter or light loam is tested by mixing the sand in water in a graduated tube and getting the percentage of foreign material in this way. The sand, having a higher specific gravity, settles to the bottom quickly, so that the line of demarcation between the sand proper and the foreign matter is easily seen and the percentage ascertained. For clay and loams this method of testing

is unsatisfactory, because in washed sand the foreign matter is so fine and of such a low specific gravity that it will settle nearly to the bottom, but will not compact, thus giving improperly a high percentage of foreign material.

Samples are submitted to the laboratory by the inspector on the job and the reports on the material are sent directly to him with a copy to the Resident Engineer. Samples are submitted as soon as the material is delivered on the work and only one sample of a particular kind of material is submitted if the sample proved satisfactory. Whenever the character of material changes, or if in the inspector's or Resident Engineer's opinion the quality is doubtful, then additional samples are sent for test.

Below is a table showing the number of tests made on sand, stone, gravel and brick:

YEAR	SAND	STONE	GRAVEL	BRICK
1912.....	94	56	20	146
1913.....	288	77	63	173
1914.....	347	95	82	58
1915.....	177	87	57	49
Totals.....	906	315	222	426

Each carload of cement was tested after it arrived on the work and before the contractor was permitted to use it, until the spring of 1914, when the volume of work became so great that some other system had to be devised. Unlike other material which can be quickly tested, cement requires seven days for a test, so the impracticability of testing this material after it arrives on the work is very evident.

Cement is tested in accordance with the American Society of Testing Materials' standard. Standard Ottawa 20-30 sand is used as a basis for all tests and comparisons. Cement is tested for neat strength for 24 hours, neat and sand for 7 days and for 28 days for setting time and for soundness.

Chemical analyses are not made, as the above physical tests invariably differentiate between good and bad cement.

In March, 1914, an inspector was placed at the cement mills which had enough orders to justify the expense. The mills set aside a bin especially for State Roads Commission work, and this

was sampled and sealed by the inspector and at the end of the seven-day period was released for loading. The inspector had all orders for cement for the State Roads Commission's work loaded from these bins, sealing each car, and after loading again sealing the bins. An invoice was sent to the office, and a copy to the inspector. The inspector at the destination, if the car came in good shape, broke the seal, and permitted the unloading to proceed. If the car and seal were not in proper condition, a sample was sent to the laboratory for retest, before the cement was used. At frequent intervals, a sample was submitted from the work and tested as a check on the test made while the material was in stock. The work in 1914 required an inspector at each of the Maryland mills and two at the Lehigh Valley mills. In 1915 the two Maryland mills each required an inspector, but the Lehigh Valley district only required one.

Below is a table showing the number of tests made on cement, and the number of barrels in the aggregate:

YEAR	TESTS MADE FROM CARS	AGGREGATING BARRELS	TESTS MADE FROM BINS	AGGREGATING BARRELS
1912.....	117	23,400	....	.....
1913.....	818	163,600	9	18,000
1914.....	291	59,200	138	272,400
1915.....	519	103,800	77	139,200

In addition to the testing of materials to be used in construction, a large number of tests have been run to determine the relative merits of the various sands offered commercially for road work, and another series to determine the advantages, if any, which accrue from the use of the addition to or substitution of hydrated lime to cement in concrete work generally, and concrete roads in particular. These tests will be of prime importance in the study of the problem of concrete roads.

In April, 1913, the testing of the tars and asphalts used in road maintenance and construction assumed such large proportions, and the fact that the Commission planned a large amount of hot mixed asphalt pavements, it was deemed advisable to employ a chemist to handle this work, and a bituminous laboratory was installed. Prior to this, all such material had been tested in commercial laboratories.

The materials submitted can be divided into two distinct classes, Maintenance—which includes all materials for surface treatment both hot and cold, patching material, etc.; Construction—which includes the materials entering into the composition of bituminous surface mixtures, the finished product, expansion joint material, etc.

The surface treatment materials comprise the lighter oils and tars, used as preservatives, dust layers and semi-permanent binders. A sample representing each shipment is submitted to the laboratory for analysis. The table below shows number of samples submitted with bids and received during season's work for surface treatment:

YEAR	Sub- mitted Bids	Selected	Atreco	Aztec	Headley No. 51	Tarvia B	Trinidad A	Texaco Special	Ugite B	Miscel- laneous*
1913	....	....	....	1	....	39	14	1	61	13
1914	11	5	....	42	....	57	36	33	59	22
1915	19	6	20	72	14	43	11	....	72	25

* This column includes special determinations, trial lots, hot application and patching material.

The table below shows the controlling characteristics determined on each sample during the season, a more complete analysis being made on the initial sample. Accompanying the bid with each material was a certificate of analysis setting forth satisfactory limits of the above characteristics, and deviations found during the season was brought to the attention of the manufacturer with instructions to remedy the same. The deviation falling outside the stated limits is cause for rejection:

NAME	Sp. Gr. 60° F.	50 cc.	50 cc.	Flash Point Open ° F.	Soluble in C. S. 2%	Insolu- ble in 86° Naphtha %	Loss 20 gms. % 5 hrs. 325° F.	Distil- lation to 300° C. %
		Viscosity 40° C. Seconds	Viscosity 90° C. Seconds					
Atreco.....	.9365	.....	27.2	148	99.9	12.5	23.5	.....
Aztec.....	.9474	.....	31.0	115	99.9	13.5	25.0	.....
Headley No. 51.....	.9653	.....	58.2	130	99.9	15.3	24.0	.....
Trinidad A.....	.9673	.....	34.6	150	99.9	6.3	24.5	.....
Tarvia B.....	1.1540	76	17.5	.....	94.0	.....	.....	33
Ugite B.....	1.1120	290	25.0	.....	98.5	.....	.....	31

In the preparation of the different surface mixtures the laboratory is represented by an inspector at the plant of the contractor, who is provided with the necessary screens, balances,

thermometers and penetrometers with which to control the raw granularmetric composition of the aggregate, temperatures, and consistency of the asphalt cement used. The inspector submits to the laboratory a daily report showing the tests made that day, together with a sample of surface mixture and asphalt cement used, which are analyzed, the former for bitumen content and aggregate composition, the latter for consistency. The work is visited daily and any changes that seem to be necessary are communicated to the plant inspector and made at once.

The following table shows the number of square yards of bituminous surface constructed under the inspection and supervision of the laboratory :

SQUARE YARDS OF BITUMINOUS SURFACE INSPECTED

YEAR	SHEET ASPHALT Sq. Yds.	BITUMINOUS CONCRETE TOPEKA TYPE Sq. Yds.	BITUMINOUS CONCRETE HEAVY TYPE Sq. Yds.	BITUMINOUS CONCRETE OPEN TYPE Sq. Yds.	PATENT SURFACES Sq. Yds.
1913....	25,250.	68,797.	.....	.....	.....
1914....	103,916.	3,519.	59,544.	107,161.	29,200.
1915....	71,706.	.....	.....	.....	.....

The table below shows the number of samples of bituminous materials submitted for testing:

TESTS OF BITUMINOUS MIXTURES

YEAR	SURFACE MIXTURES	ASPHALT CEMENT CON- SISTENCY	SAND	STONE	REFINED ASPHALT	FLUX	BLOCK FILLER	MISCEL- LANEOUS*
1913...	98	76	2	3	5	....	5	....
1914..	152	310	9	9	36	5	5	7
1915...	82	82	11	4	8	3	3	3

* This column contains samples of old surfaces, binder, etc , tested, not in conjunction with daily plant output.

RIGHTS-OF-WAY

When a State road is once built its route is not likely to be thereafter changed, on account of the expense involved, for which reason it should be properly located in the first instance, and unusual pains have been taken since 1912 to shorten our system by eliminating sharp curves and reducing steep grades and unnecessary distances. This saves the cost of construction on the distance eliminated and all future maintenance on same, besides decreasing the distance to be traveled. While this is a great benefit to the users of the roads, our books not only do not disclose this saving, but, on the contrary, they show an added artificial cost per mile, because the expense of securing rights-of-way, etc., for these relocations has to be charged against the smaller actual mileage built, while no credit is shown for the saving in construction or for future maintenance on the distance shortened.

A Right-of-Way Department was created in May, 1912, and placed in charge of Mr. Frank H. Zouck, Assistant Chairman, who is an expert in such matters. The amount of work done by this department has been large and very satisfactory. Wherever the necessary rights-of-way could be secured free, or at a reasonable price, this was done, and condemnation proceedings were only resorted to when actually necessary. It is estimated that the number of rights-of-way secured throughout the State by this department has approximated 1,283.

Among the most important relocations for which rights-of-way had to be purchased or condemned may be mentioned the following:

In Garrett County, between Accident and Cove, in the heart of the Allegheny Mountains, the relocation being 3 miles in length, with easy grades and alignments, and where the old road was very crooked, the grades steep, and the road almost impassable in winter. The grades on the old road reached a maximum of 23%, and only 7.5% on the new. This was accomplished without increasing the distance or the cost of construction, although the grading was of a very heavy nature, like railroad work, it being estimated that 70,000 cubic yards of earth and stone were excavated.

In Washington County, between Hancock and Licking Creek, extensive relocations were made, in order to eliminate four very dangerous grade crossings on the Western Maryland Railway between these points. After negotiations with the railway com-

pany covering several years an agreement has been reached for the elimination of all these crossings, of which three have already been eliminated, two by the State Roads Commission, and one by the railway company, and the fourth will be eliminated by the railway company in the near future.

In Baltimore County, on the Belair Road, just south of the Gunpowder Falls, a relocation of 0.7 miles in length was made, which reduced a maximum 11% grade to 6%, without increasing the distance, and at a smaller cost of construction. In this case the owner held out for a prohibitive price of \$3,000, and after negotiating with him in vain for about two years, condemnation proceedings were resorted to, and a jury gave an award of \$125. The owner appealed to the District Court at Towson and then to the Court of Appeals at Annapolis, both of which courts sustained the position of the Commission.

In Anne Arundel County, between South River and Birdsville, where the old road was very narrow and crooked, a relocation of 1.2 miles in length was made, which shortened the road nearly a mile, with a far better alignment, and a saving of \$5,000 in construction.

In Calvert County, between Lusby and Solomons, a similar condition was overcome, the relocation being 0.7 miles in length.

In St. Mary's County, the distance between Leonardtown and St. Mary's City has been reduced from 20 miles to 18.5 miles, with a maximum reduction in grades from 13% to 7.5% and a saving of \$12,000 effected in construction alone.

In Wicomico and Worcester Counties, much of the 29 miles from Salisbury to Ocean City is a relocation, making the road almost an air line, and the finest stretch of concrete in the State.

In Somerset, between Carroll's Corner and Hopewell, and between Hopewell and Crisfield, almost the entire line was relocated and straightened, effecting a saving in distance of 0.55 miles, and in cost of construction of \$6,000.

Several very dangerous curves which were left in the system in the earlier stages of its construction should be eliminated as soon as the funds are available. Among these may be mentioned: one at Sunderland, in Calvert County, north of Prince Frederick; one north of La Plata, in Charles County; one South of Hurlock, in Dorchester County; and several north of Leonardtown, in St. Mary's County. It is believed that the cost of doing this will be justified by the saving in maintenance and distance, and in the lessening of risk to travelers.

PURCHASING DEPARTMENT

In the latter part of 1912 a Purchasing Department was organized, requiring written requisitions similar to that used by large railway corporations. All supplies, materials, stone, sand, oil, machinery, etc., are bought by a Purchasing Agent, who is familiar with the prices of all supplies, as well as of freight rates to the different points where material may be needed throughout the State. The following is the estimated saving by this department on purchases of material:

(1) ESTIMATED SAVINGS ON PURCHASES

Year	Amount Saved
1913.....	\$25,000
1914.....	18,000
1915.....	16,500
Total Saving.....	<hr/> \$59,500

When materials or supplies are needed, a requisition is made out and forwarded to the Chief Engineer or Assistant Chairman for approval. If the quantity is large, the requisition must also be approved by the Chairman. It is then turned over to the Purchasing Agent, who purchases the material from the lowest responsible bidder. As soon as the purchase is made an official order is forwarded to the seller by the Purchasing Department, together with printed forms of billheads, on which all bills must be rendered in triplicate. When the order is filled, and the bills are received, they are stamped, the original being retained in the office, and the duplicate and triplicate forwarded to the Resident Engineer to approve the articles bought as to quality and quantity. When the duplicate bill has been properly signed and approved, it is returned to the office, the Resident Engineer retaining the triplicate for his files. The bills on which a cash discount may be secured are kept in a separate file and are turned over to the Auditing Department, so that a check can be made out and placed before the Chairman for his signature within the discount period.

A cost card system was installed in 1913, by which it is possible at all times to ascertain the amount of each kind of material purchased and the cost of same. This system shows at a glance if the material which has been ordered is in transit or has

been delivered, as well as the total quantities of the different kinds of material bought throughout the year.

The total amount of material purchased during the past three years by the Purchasing Department is \$316,019.94, as follows:

AMOUNT OF SUPPLIES PURCHASED IN 1913-14-15	
91,320.65 tons of stone chips.....	\$116,030.49
30,476.13 tons of No. 2 stone.....	43,741.24
10,044.38 tons of dust.....	10,092.51
2,478.59 tons of sand and gravel.....	2,560.29
534,237 gallons of oil, for patching.....	45,039.94
Terra cotta pipe, culvert pipe, black iron pipe, paint, etc.....	10,572.83
Oyster shells, cement, iron bars, greases, oils, etc.....	14,797.32
Lumber.....	13,842.82
Repairs to rollers, crushers, concrete mix- ers, etc.....	3,147.88
Tools, graders, tar pots, etc.....	9,652.85
Local material, lumber, gravel, coal, etc...	15,421.69
Tires, tubes, etc., for automobiles and trucks	2,230.84
Supplies for Drafting Room, Chemical Laboratory, etc.....	15,369.03
Office supplies and printing.....	13,520.21
Total	\$316,019.94

The following table shows the savings by cash discounts for the years 1913, 1914, and 1915:

(2) SAVINGS BY CASH DISCOUNTS

Year	Amount Saved
1913.....	\$3,300.00
1914.....	2,633.57
1915.....	2,774.60
Total Saving.....	\$8,708.17

During 1913 the Pennsylvania Railroad Company notified the Interstate Commerce Commission at Washington that they proposed to raise the rates on stone, used for road-building pur-

poses, 15 cents per ton. The Purchasing Department, being familiar with all the different rates throughout the State and other parts of the country, submitted such data to the Interstate Commerce Commission that, after hearing the case, they prohibited any increase in freight rates, which resulted in a saving to the State of 15 cents per ton on 473,589.07 tons, or \$71,038.36.

The following table shows the total estimated savings of the Purchasing Department for the years 1913, 1914, and 1915:

TOTAL SAVINGS OF PURCHASING DEPARTMENT	
Item	Amount Saved
On purchases.....	\$59,500.00
On discounts.....	8,708.17
On freight rates.....	71,038.36
<hr/>	
Total Saving.....	\$139,246.53

ROAD-BUILDING EQUIPMENT

There has been purchased by the Commission in the eight years from 1908 to 1915 about \$85,000 worth of equipment, the greater portion of which was bought between 1908 and 1912. This equipment consists of 15 steam rollers, 14 sprinklers, 4 stone crushing plants, 8 motorcycles, 5 sweepers, 1 large convertible motor truck for oiling and hauling stone, 1 concrete mixer, 22 dump wagons, 8 Ford runabouts, 1 light Hudson touring car, 1 Lozier touring car and the necessary miscellaneous tools, such as picks, shovels, etc. Most of this machinery has been used throughout the State in the different counties, both for construction and maintenance work, and no charge has been made against the counties' funds for the use of same, the only cost being for the necessary repairs and operating expense. As road-building equipment depreciates very rapidly, it is estimated that the equipment has depreciated 20% per annum and that the value at the present time is about \$12,000. As practically all work is now being done by contract, with the exception of maintenance, it will probably be advisable to close the equipment account and divide up the machinery among the different counties, placing it in charge of the Resident Engineers of the respective counties for use on maintenance work. It is necessary for the Resident Engineers to be supplied with such equipment in order to properly take care of all the roads in

their respective residencies and to make such necessary repairs and fill in any short gaps that are too small to be let by contract. With the necessary equipment on hand, and properly distributed among the Resident Engineers, it will be possible to take care of all such work. However, should additional equipment be necessary, the Commission feels that when it is purchased hereafter it should be charged up to the county for which it is purchased and in which it will be used.

ACCOUNTING DEPARTMENT

The system of bookkeeping and accounting adopted by the Commission in 1908 did not prove to be satisfactory, and early in 1912 an audit of the books, as well as a re-classification of the accounts, was made by Messrs. Haskins & Sells, by whom an improved system was installed. This has greatly simplified the operation of keeping the books and the accounts.

After the monthly trial balance has been taken off, the overhead charges are apportioned to the four control accounts, that is, to the State Road, Roads and Bridges (Annapolis Boulevard), Baltimore and Washington Boulevard, and State Aid Road, funds, respectively, and then apportioned and charged against the allotment of each county. Current obligations are then summarized by counties, with the result that within one week after the posting for each month has been completed, an exhibit of balances available for new work (the balance for each county being shown separately) is prepared. This information is necessary in order that the Commission may be able to estimate the amount available for the construction of new roads, and to proceed with advertisement for bids for same.

The Paymaster's account is based on the principles of the "Imprest System," which was installed to relieve the Chairman of a large amount of detail work. The Paymaster has a reserve fund on deposit in bank. In three and one-half years, the Paymaster has issued 81,000 checks in payment of patrolmen's wages, team hire, sundry material and supplies. This fund is reimbursed periodically by deposits received from the Chairman's checking account, and is amply protected, as well as other funds, by surety bonds, which are furnished, and premiums paid, by the several depositories.

FEDERAL AID

There is a very strong sentiment throughout the West and South for the passage of a law by Congress to aid the States in the construction and maintenance of such roads as may be agreed upon by the Federal Government and the States. A bill for this purpose, prepared by the American Association of State Highway Officials, has been introduced in Congress, providing for a co-operative plan between the Federal Government and the States, on both construction and maintenance, the Government to stand 50% and the State 50%, and the work to be done by the State under the general supervision of the Government. This would be along the same general principle as the Maryland State Aid Law, where the State assists the county in building roads. The control and construction of the roads would be in the hands of the State, the Government only approving of the application and the type of road to be laid. The appropriation asked for in the bill is \$25,000,000, of which amount something over \$318,000 per annum would come to Maryland. This fund could be used for either maintenance or construction, as agreed upon between the Government and the State. Maryland's share of such an appropriation could be applied to the secondary lines and spurs in the system, so that many sections of the State could be provided with improved roads, to be maintained out of the Automobile Fund and from the Government allotment. The bill now in Congress has been submitted to the State Highway Departments of all the States having Highway Departments and has been adopted as the method promising the best results.

FRANCHISES

The lax method of issuing permits to public service corporations to erect or lay structures under, on, or over State roads was so unsatisfactory that it was changed in July, 1912, to the issuing of a regular franchise with a life of 25 years, instead of permits for an indefinite term. These franchises are in effect contracts between the different Public Service corporations and the State Roads Commission, whereby the rights of the State are very much better protected. Those companies having franchises granted by the Legislature are exempt on streets and roads on which they have these privileges, and in these cases they are given the right to use same by permit. A small charge is made for all franchises, this being in proportion to the diameter of the pipe or conduit, or to the number of poles erected, etc. These

franchise taxes already bring in some revenue to the State, and about pay for the expenses incident to the supervision and general cost incurred in the work. This plan is working very satisfactorily, and in future years when these franchises are re-valuated they should bring to the State a considerable revenue.

NEW LAWS

The damage done the roads of the State by the heavy motor trucks is such that the Commission feels that the extraordinary wear caused the State roads by the use of commercial motor trucks is so excessive that truck owners should pay a license fee in proportion to the amount of damage done. They, therefore, recommend that a law be passed putting a larger license fee on commercial motor vehicles, similar to the one recommended to the last Legislature by the Commission.

The condemnation law now on the statute books is cumbersome and a great deal of unnecessary time is taken up in carrying out its provisions. The Commission would recommend that a new condemnation law similar to that used in North Carolina and several other States be enacted, which will properly protect the private individual, and at the same time, admit of the work being carried on without long and unnecessary delays.

AUDIT

An examination of the books and accounts of the Commission from June, 1912, to December 31st, 1915, has been made by Messrs. Haskins & Sells, Certified Public Accountants, whose certificate as to the correctness and accuracy of same is filed herewith. An audit up to June, 1912, was made as of that date by the same firm.

FINAL REPORT

This report covers fully all work done by the Commission from 1912 up to and including December 31st, 1915.

ASSISTANCE FROM THE OFFICE FORCE

The satisfactory results secured during the last four years were in the largest measure due to the faithful and zealous co-operation of the field and office force, to whom a large amount of the credit should be given.

REPORT OF THE AUDITORS

HASKINS & SELLS

CERTIFIED PUBLIC ACCOUNTANTS

30 BROAD STREET

NEW YORK

CABLE ADDRESS "HASKSELLS"

WATERTOWN
BALTIMORE
PITTSBURGH
CLEVELAND
CHICAGO
ST. LOUIS
ATLANTA
DENVER
SAN FRANCISCO
LONDON, E. C.

BALTIMORE, February 25, 1916.

*State Roads Commission of Maryland,
Baltimore, Maryland.*

DEAR SIRs:

Pursuant to engagement, we have audited the books and accounts of the State Roads Commission of Maryland for the period from June 1, 1912, to December 31, 1915, and submit herewith the following described exhibit and schedule:

EXHIBIT "A"—RECEIPTS AND EXPENDITURES, BY FUNDS, FOR
THE PERIOD FROM JUNE 1, 1912, TO DECEMBER 31, 1915.

Schedule No. 1—Statement of Overhead Expenses.

The allotment of the receipts from sales of bonds, appropriations, etc., to the several funds, and the apportionment of receipts to the various counties, have been made in accordance with the provisions of general and specific Legislative Acts.

The distribution of the expenditures for the period under review has been tested and found to be in accordance with the classification of accounts recommended by us and adopted by you.

The cash with the State Treasurer and in banks at December 31, 1915, was verified by certifications obtained from the depositories.

The vouching of expenditures included adequate tests of the Paymaster's accounts for the period under review.

WE HEREBY CERTIFY that the accompanying exhibit and schedule are, in our opinion, correct and that the books are in agreement therewith.

Yours truly,

(Signed) HASKINS & SELLS,

Certified Public Accountants.

MARYLAND STATE ROADS COMMISSION.

Financial Report—From May 19, 1908, to December 31, 1915.

EXHIBIT "A"

Receipts and Expenditures, by Funds, from May 19, 1908, to December 31, 1915.

EXHIBIT "B"

Summary of Expenditures, Obligations, Allotments and Balances, by Counties, to December 31, 1915—State Road Fund.

EXHIBIT "C"

Summary of Expenditures, Obligations, Allotments and Balances, by Counties, to December 31, 1915—State Aid Road Fund.

EXHIBIT "D"

Summary of Expenditures, Obligations, Allotments and Balances to December 31, 1915—Roads and Bridges Fund.

EXHIBIT "E"

Summary of Expenditures, Obligations, Allotments and Balances to December 31, 1915—State Road No. 1 Fund.

EXHIBIT "F"

Statement of Overhead Expenses from May 19, 1908, to December 31, 1915.

	RECEIPTS				Total.
	Fund				
	State Road	State Aid Road	Roads and Bridges	State Road No. 1	
Receipts from State Treasurer:					
Proceeds from Sales of State Road Bonds:					
Under Provisions of Chapter 141, Acts of 1908.....	\$4,760,209.76				\$4,760,209.76
Under Provisions of Chapter 116, Acts of 1910.....			\$991,447.55		991,447.55
Under Provisions of Chapter 370, Acts of 1912.....	2,913,911.98			\$196,520.63	3,110,432.61
Under Provisions of Chapter 749, Article 7, Acts of 1912.....	38,876.25				38,876.25
Under Provisions of Chapter 267, Acts of 1914.....	6,465,082.36			49,351.79	6,514,434.15
Total.....					\$15,415,400.31
General and Special Appropriations:					
Under Provisions of Chapter 217, Acts of 1910, and as Amended by Chapter 121, Acts of 1912, for Fiscal Years of 1910, 1911, 1912, 1913, 1914, 1915 and 1916.....		\$1,600,000.00			\$1,600,000.00
Under Provisions of Chapter 409, Sections 104 and 105, Acts of 1910.....				†110,000.00	110,000.00
Under Provisions of Chapter 50, Acts of 1914.....				15,000.00	15,000.00
Total.....					\$1,725,000.00
Proportion of Collections under Motor Vehicle Law, Chapter 207, Acts of 1910, and Chapter 133, Acts of 1912.....	432,745.20	160,559.15		6,982.28	\$600,286.63
Under Provisions of Chapter 375, Acts of 1912, Section 37-A-1, for Repairs and Maintenance of Modern State Roads.....	222,190.94				222,190.94
Total.....					\$822,477.57
Total Receipts from State Treasurer					\$17,962,877.88
Receipts from Maryland Geological Survey:					
Balance of Unused Appropriations with State Treasurer under Chapter 217, Acts of 1910.....		97,544.81		24,052.89	\$121,597.70
Receipts from Other Sources:					
Preliminary Surveys and Plans, State Aid Roads.....		9,012.50			\$9,012.50
Interest on Bank Accounts.....	99,699.30		39,922.19	7,375.04	146,996.53
Sale of Plans and Specifications..	3,515.48	508.45	103.97	40.24	4,168.14
Rent and Tolls.....	1,423.50		1,927.50	14.00	3,365.00
Permits.....	5,706.22		50.00		5,756.22
Miscellaneous.....	3,921.57				3,921.57
Total Receipts from Other Sources.....					\$173,219.96
Total Receipts, All Sources.....	\$14,947,282.56	\$1,867,624.91	\$1,033,451.21	\$409,336.87	\$18,257,695.55

†Does not include \$10,000 that reverted to State Treasurer for Baltimore City on account of Columbia Avenue.

*Composed of:	
Cash in Bank and with State Treasurer.....	\$1,366,866.72
(Shown opposite)	
Petty Cash Funds.....	35.00
Payroll Cash Fund.....	3,250.00
Paymaster's Cash Fund.....	50,097.92
Mileage Books.....	867.71
Office Furniture and Fixtures.....	2,385.41
	\$1,423,502.76
Non-Collectible Accounts.....	337.61
	\$1,423,840.37
Less Current Liabilities:	
Conowingo Bridge Bonds.....	9,000.00

Total..... \$1,414,840.37

COMMISSION.

FROM MAY 19, 1908, TO DECEMBER 31, 1915.

EXPENDITURES

	Fund				Total
	State Road	State Aid Road	Roads and Bridges	State Road No. 1	
Roads and Structures:					
Per Schedules Nos. 1, 2, 3, 4, 5 and 6.					
Preliminary Surveys and Plans in Advance of Construction.	\$104,477.28	\$30,127.39	\$2,992.56	\$2,343.35	\$139,940.58
Construction.....	12,080,121.63	1,229,313.45	571,326.72	314,128.76	14,194,890.56
Reconstruction.....	92,644.43				92,644.43
Maintenance.....	1,147,403.99		24,625.18	56,482.03	1,228,511.20
Total Roads and Structures Expenditures.....	\$13,424,647.33	\$1,259,440.84	\$598,944.46	\$372,954.14	\$15,655,986.77
Overhead Expenses:					
Exhibit "F."					
Administration, Legal and Engineering.....	\$445,895.69	\$124,616.25	\$21,934.31	\$13,570.53	\$606,016.78
Total Roads and Structures Expenditures and Overhead Expenses Applicable Thereto—Per Exhibits "B," "C," "D" and "E".....	\$13,870,543.02	\$1,384,057.09	\$620,878.77	\$386,524.67	\$16,262,003.55
Other Expenditures:					
Payments from Motor Vehicle Tax Fund.....		\$128,558.76			\$128,558.76
United Railways and Electric Co. Equipment.....	\$337,800.50		\$6,177.22		343,977.72
	84,082.27				84,082.27
Interest Paid on Bills and Accounts.....	15,829.86		3,268.79	\$331.80	19,430.45
Miscellaneous.....	3,043.26	549.97	691.46	517.74	4,802.43
Total Other Expenditures...	\$440,755.89	\$129,108.73	\$10,137.47	\$849.54	\$580,851.63
Total Expenditures.....	\$14,311,298.91	\$1,513,165.82	\$631,016.24	\$387,374.21	\$16,842,855.18
*Balance Unexpended.....	635,983.65	354,459.09	402,434.97	21,962.66	1,414,840.37
Totals.....	\$14,947,282.56	\$1,867,624.91	\$1,033,451.21	\$409,336.87	\$18,257,695.55
Cash in Bank and with State Treasurer:					
With State Treasurer as of December 31, 1915.....				\$423,457.90	
With Banks as of December 31, 1915.....				943,408.82	
Total.....				\$1,366,866.72	

STATE ROADS COMMISSION.

STATE ROADS FUND.

SUMMARY OF EXPENDITURES, OBLIGATIONS, ALLOTMENTS AND BALANCES, BY COUNTIES, TO DECEMBER 31, 1915.

County	Preliminary in Advance of Con- struction	Construction			Recon- struction	Main- tenance	Overhead Expenses	Account of United Rys. and Elec. Co.	Total	Allotments	*Balance Unexpended	Contracts Out- standing	*Balances Available	County
		Contract	Other											
EXPENDITURES														
Allegheny.....	\$2,585.03	\$201,877.04	\$136,843.86	\$1,036.12	\$53,406.62	\$15,075.13	\$15,283.32	\$410,823.80	\$423,600.89	\$12,777.09	\$7,759.05	\$5,018.04	Allegheny	
Anne Arundel.....	4,168.74	208,447.04	29,750.40	14,237.17	62,160.04	12,638.69	282,468.30	346,685.40	348,509.28	1,823.88		1,823.88	Anne Arundel	
Baltimore City.....	23,075.43	2,038,614.99	165,650.67			64,015.39	282,468.30	2,573,824.78	3,145,516.92	571,692.14	444,200.00	127,492.14	Baltimore City	
Baltimore Co.....	4,850.65	797,254.86	108,903.71	2,757.16	164,273.85	36,875.24	40,048.88	1,154,964.35	1,166,216.14	11,251.79	9,107.17	2,144.62	Baltimore Co.	
Calvert.....	4,288.79	107,099.25	99,802.59	2,283.05	30,853.75	9,414.51		253,741.94	254,900.51	1,158.57		1,158.57	Calvert	
Caroline.....	2,524.48	416,467.01	66,561.94	528.86	45,503.40	18,049.75		549,635.44	555,337.12	5,701.68		5,701.68	Caroline	
Cecil.....	2,765.49	364,478.32	65,623.74	1,683.46	42,872.14	16,570.94		493,694.09	495,599.16	1,905.07		1,905.07	Cecil	
Charles.....	6,965.63	423,801.78	172,728.32	2,204.36	40,639.13	18,867.72		665,206.94	679,564.37	14,357.43	12,000.00	2,357.43	Charles	
Dorchester.....	3,458.94	257,265.30	112,151.17		36,984.03	14,601.01		425,570.45	442,520.63	16,950.18	3,300.00	13,650.18	Dorchester	
Frederick.....	3,456.25	404,293.31	98,775.62	7,353.97	41,001.00	18,208.53		565,734.71	553,075.08	12,659.63	6,000.00	19,259.63	Frederick	
Garrett.....	1,948.11	442,985.14	157,788.32	8,211.72	64,815.53	19,978.69		694,869.76	698,357.77	3,488.01	1,600.00	1,888.01	Garrett	
Harford.....	3,560.80	288,112.30	62,321.46	17,599.72	34,763.13	19,625.64		448,999.27	446,742.76	2,256.51		2,256.51	Harford	
Howard.....	921.55	167,105.09	117,994.00	1,673.22	66,371.95	13,125.69		383,118.00	384,409.67	1,291.67	1,286.69	1,291.67	Howard	
Kent.....	1,350.48	211,499.87	7,586.71	1,673.22	27,191.63	8,847.96		258,113.78	259,913.49	1,779.93		1,779.93	Kent	
Montgomery.....	3,512.12	291,598.37	205,553.20	6,734.24	49,572.18	19,143.67		576,113.78	577,893.71	27,764.48	17,800.00	9,964.48	Montgomery	
Prince George's.....	2,643.06	387,959.51	12,670.36	13,205.62	79,783.55	20,370.94		516,633.04	544,397.52	3,886.70		3,886.70	Prince George's	
Queen Anne's.....	2,467.60	385,231.91	17,677.96	1,673.20	41,001.71	15,575.55		463,627.91	469,337.58	5,709.67		5,709.67	Queen Anne's	
St. Mary's.....	6,334.51	350,445.13	41,022.08		29,554.22	14,624.91		441,980.85	432,741.31	9,239.54	17,100.00	9,239.54	St. Mary's	
Somerset.....	3,645.15	213,905.63	158,431.00		22,038.93	13,010.12		411,936.21	431,645.15	20,614.32		20,614.32	Somerset	
Talbot.....	1,797.41	237,225.77	7,497.38	528.88	22,472.18	9,434.50		278,956.21	280,053.03	1,096.82		1,096.82	Talbot	
Washington.....	3,330.63	261,998.93	184,903.11	6,169.27	49,102.36	14,703.82		520,208.12	542,319.35	22,111.23	16,500.00	5,611.23	Washington	
Wicomico.....	3,952.67	295,544.74	183,412.87	4,268.63	34,212.39	16,972.55		538,363.85	556,020.29	17,656.44		17,656.44	Wicomico	
Worcester.....	5,950.37	301,376.13	228,413.23	4,495.78	31,718.83	18,271.38		586,225.72	607,934.69	21,708.97	18,500.00	3,208.97	Worcester	
Totals.....	\$104,477.28	\$9,521,716.77	\$2,558,404.86	\$92,644.43	\$1,147,403.99	\$445,895.69	\$337,800.50	\$14,208,343.52	\$14,947,282.56	\$738,939.04	\$559,639.61	\$179,299.43	Totals	

* Bold figures indicate excess of Expenditures and Contract Obligations over Allotments.

Exhibit "B."

STATE ROADS COMMISSION.
STATE AID ROAD FUND.
SUMMARY OF EXPENDITURES, OBLIGATIONS, ALLOTMENTS AND BALANCES, BY COUNTIES, TO DECEMBER 31, 1915.

STATE'S EXPENDITURES										ALLOTMENTS		BALANCES AVAILABLE			
County	Preliminary Advance of Construction	Construction	Payments from Motor-Vehicle Fund	Overhead Expenses	Total	Contracts Outstanding (State's One-half)	Total Expenditures and Contract Obligations	Appropriations and Sundry Receipts	Motor-Vehicle Tax	Total	For Maintenance from Motor-Vehicle Tax	*For Construction	*Total	County	
Allegheny.....	\$1,812.66	\$127,595.48	\$11,003.26	\$13,967.01	\$153,478.41	\$15,701.60	\$169,180.01	\$145,064.99	\$16,967.66	\$162,032.65	\$5,964.40	\$13,111.76	\$7,147.36	Allegheny	
Anne Arundel.....	1,395.25	69,028.03	906.58	5,456.31	76,786.17	12,629.18	89,415.35	73,629.03	4,096.33	77,725.36	3,189.75	\$13,879.74	\$11,889.99	Anne Arundel	
Baltimore City.....														Baltimore City	
Baltimore Co.....	3,081.53	172,439.04	27,495.95	20,516.98	223,533.50	14,756.58	238,290.08	191,578.69	27,495.95	219,074.64		19,215.44	19,215.44	Baltimore Co.	
Calvert.....	349.21			161.41	510.62		238,290.08	191,578.69		219,074.64		19,215.44	19,215.44	Calvert	
Caroline.....	2,069.99	95,737.01	10,858.66	9,171.77	117,867.43	11,287.97	129,155.40	112,597.65	10,858.66	123,768.88		5,769.09	5,769.09	Caroline	
Carroll.....	1,539.92	70,913.84	3,632.90	6,227.60	82,314.26	1,359.84	83,663.10	88,500.85	5,099.22	93,600.07	1,466.32	8,468.65	9,931.97	Carroll	
Cecil.....	734.62	66,219.11	9,407.48	8,022.83	84,384.04	11,727.20	96,111.24	82,373.38	13,967.33	96,340.71	4,559.85	4,330.38	291.47	Cecil	
Charles.....	293.56	5,426.15	230.88	524.91	6,475.50		6,475.50	26,637.21	3,796.68	27,433.89	565.80	20,412.59	20,978.39	Charles	
Dorchester.....	1,694.84	67,856.16	2,926.85	4,723.65	77,201.50	7,559.59	84,761.09	84,935.24	3,918.60	88,853.84	991.75	3,101.00	4,092.75	Dorchester	
Frederick.....	1,942.71	12,931.66	527.43	1,061.58	16,463.38	17,695.72	34,059.10	43,911.65	1,074.28	44,985.93	546.85	10,379.98	10,926.82	Frederick	
Garrett.....	2,048.25	24,720.29	1,250.20	1,250.20	28,018.74	3,964.12	31,982.86	59,660.61		59,660.61		27,677.75	27,677.75	Garrett	
Harford.....	1,249.71	58,984.89	13,290.38	9,794.95	83,319.93	1,465.19	84,785.12	110,928.21	16,458.48	127,386.69	3,168.10	39,433.17	42,601.57	Harford	
Howard.....	1,091.75	44,342.07	3,883.80	3,770.00	53,087.62		53,087.62	59,179.04	4,709.97	63,889.01	1,398.64	5,801.79	10,801.36	Howard	
Kent.....	501.99	20,208.28		1,163.09	21,873.36	6,191.97	28,065.33	33,867.12	1,398.64	35,265.76	1,398.64	5,801.79	7,200.43	Kent	
Montgomery.....	1,294.35	118,858.85	23,586.87	12,408.49	156,148.56	4,163.84	160,312.40	121,835.76	23,586.87	145,422.63		14,889.77	14,889.77	Montgomery	
Prince George's.....	468.21	27,089.76	4,770.09	4,319.43	36,647.49	6,738.70	43,386.19	61,270.57	6,291.37	67,531.91	1,491.28	22,654.47	24,145.75	Prince George's	
Queen Anne's.....	1,380.90	39,554.41		3,727.11	44,662.45	20,854.96	65,517.41	70,902.48	1,952.69	72,855.17	1,952.69	5,985.07	7,937.76	Queen Anne's	
St. Mary's.....	311.20	15.39		19.38	345.97	3,893.95	4,239.92	22,861.57		22,861.57		18,621.65	18,621.65	St. Mary's	
Somerset.....	342.71	25,645.22	404.88	1,841.76	28,234.57	7,127.04	35,361.61	44,663.30	1,162.34	45,825.64	757.46	9,706.57	10,464.03	Somerset	
Talbot.....	2,186.02	78,326.80	842.90	5,666.26	87,021.98	18,366.80	105,388.78	93,674.58	1,851.13	95,525.71	1,008.23	10,871.30	9,853.07	Talbot	
Washington.....	2,970.62	18,435.38	1,324.79	1,742.48	24,473.27	28,731.77	53,205.04	90,463.73	1,556.51	92,020.24	231.72	22,416.52	22,184.80	Washington	
Wicomico.....	1,058.22	56,100.85	10,127.36	6,388.73	73,675.16	12,106.12	85,781.28	75,383.63	10,127.36	85,510.99		270.89	270.89	Wicomico	
Worcester.....	279.17	28,884.75	3,337.70	3,590.32	36,091.94		36,091.94	61,428.19	7,219.08	68,647.27	3,881.38	28,673.95	32,555.33	Worcester	
Totals.....	\$80,127.39	\$1,229,313.45	\$128,558.76	\$124,616.25	\$1,512,615.85	\$206,213.14	\$1,718,828.99	\$1,707,065.76	\$160,559.15	\$1,867,624.91	\$32,000.39	\$116,795.53	\$118,795.92	Totals	

* Bold figures indicate excess of Expenditures and Obligations over Allotments.

Exhibit "C"

STATE ROADS COMMISSION.
ROADS AND BRIDGES FUND.
SUMMARY OF EXPENDITURES, OBLIGATIONS AND BALANCES TO DECEMBER 31, 1915.

	Preliminary Surveys in Advance of Construction	Construction	Account of United Rail- ways and Electric Company	Maintenance	Proportion of Overhead Expenses Applicable Thereto	Total Roads and Structures Expenditures and Overhead Expenses Applicable Thereto	Appropriations and Sundry Receipts	Balance Unexpended	Contracts Outstanding	Net Balance Available
Anne Arundel County.....		\$371,637.65	\$6,177.22	.....	\$15,474.73					
Severn River Bridge.....		.....	.....	\$36,248.59	1,411.80					
College Creek Bridge.....		43,186.71	.....	526.14	1,802.83					
Nantuxee Bridge.....	\$2,992.56	72,539.54	.....	.....	2,995.46	\$631,016.24	\$1,033,451.21	\$402,434.97	\$24,483.25	\$377,951.72
Approaches.....		65,000.00	.....	6,813.27	2,249.49					
Conowingo Bridge.....		.....	.....	.....	.....	
Misc. Expenditures.....		.....	.....	.....	.....	
Totals.....	\$2,992.56	\$552,363.90	\$6,177.22	\$13,588.00	\$21,934.31	\$631,016.24	\$1,033,451.21	\$402,434.97	\$24,483.25	\$377,951.72

Exhibit "D."

STATE ROADS COMMISSION.

STATE ROAD NO. 1 FUND.

SUMMARY OF EXPENDITURES, OBLIGATIONS, ALLOTMENTS AND BALANCES TO DECEMBER 31, 1915.

Preliminary Surveys in Advance of Construction	Construction	*Maintenance	Total	Proportion of Overhead Expenses Applicable Thereto	Total Roads and Structures Expenditures and Overhead Expenses Applicable Thereto	Appropriations and Sundry Receipts	Balance Unexpended	Contracts Outstanding	Net Balance Available
Baltimore City.....	\$9,84	\$16,852.72	\$16,862.56	\$613.54	\$17,476.10				
Baltimore County.....	989.47	99,785.05	109,839.19	3,996.68	113,835.87				
Howard County.....	627.14	56,369.14	82,051.47	2,985.56	85,037.03				
Prince George's County..	716.90	141,121.85	164,200.92	5,974.75	170,175.67				
Misc. Expenditures.....					\$49.54				
Totals.....	\$2,343.35	\$314,128.76	\$372,954.14	\$13,570.53	\$387,374.21	\$409,336.87	\$21,962.66	\$16,637.10	\$5,325.56

* The maintenance expenditures under State Roads Fund were: Baltimore County, \$3,713.48; Howard County, \$26,563.43, and Prince George's County, \$30,345.09. Total, \$60,622.00.

Exhibit "E."

STATE ROADS COMMISSION.

Statement of Overhead Expenses—From May 19, 1908, to December 31, 1915.

ADMINISTRATION:

Commission—Salaries and Expenses	\$84,005.23	
Commission—Secretary's and Office		
Employees' Salaries.....	46,177.84	
Commission—Office Expenses.....	25,354.60	
Counsel Salary, Fees and Expenses.	15,423.01	
Total Administration.....		\$170,960.68

ENGINEERING:

GENERAL:

Engineer's Salary and Expenses....	\$41,301.62	
Office Employees' Salaries.....	55,213.18	
Office Expenses.....	55,535.64	
Shop Labor, Investigations and Ma-		
terials.....	25,903.08	
Equipment Employees' Salaries and		
Expenses — and Equipment Re-		
pairs and Supplies.....	16,572.65	
Total.....		\$194,526.17

PRELIMINARY AND CONSTRUCTION:

Engineers' Salaries and Expenses...	\$38,959.36	
Resident Engineers' Salaries and		
Expenses.....	74,103.56	
Office Employees' Salaries.....	31,438.05	
Office Expenses.....	9,218.70	
Total.....		153,719.67

RECONSTRUCTION AND MAINTENANCE:

Engineers' Salaries and Expenses...	\$14,317.55	
Resident Engineers' Salaries and		
Expenses.....	53,101.35	
Office Employees' Salaries.....	12,628.07	
Office Expenses.....	6,763.29	
Total.....		86,810.26
Total Engineering.....		435,056.10

Total Overhead Expenses.....	\$606,016.78
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Exhibit "F."

STATE ROADS

COST OF COMPLETED

MAY 19, 1908, TO

County	Contract Number	Location of Road	Description	Year When Completed	Miles of Road	CONSTRUCTION	
						Preliminary Surveys and Plans	Grading
Allegheny	0140 A	Frostburg—Eckhart Mines.	14' Macadam	1911	1.00	\$61.52	\$1,695.26
	0140 B	Garrett County Line—Frostburg.	14' Macadam	1911	1.00	61.52	2,474.89
	0140 C	Frostburg—Eckhart Mines.	14' Macadam	1911	0.25	15.25	727.18
	0141	Naves Farm Road—Six-Mile House.	14' Macadam	1912	3.34	205.51	7,137.57
	0142	Standard Oil Warehouse—Railroad Crossing.	14' Macadam	1911	0.53	32.57	1,349.96
	0142 B & C	Cumberland—McKenzie's Store.	14' Macadam	1912	0.72	44.21	232.82
	0143	Six-Mile House—Allegheny Grove.	14' Chert	1912	1.02	62.56	
	0144	Garrett County Line—Frostburg.	14' Macadam	1911	0.64	39.29	1,545.70
	0145	Six-Mile House—Martin's Mountain.	14' Macadam	1912	3.83	235.24	11,549.46
	0145 B	Martin's Mountain—Flintstone.	14' Macadam	1913	3.11	191.03	4,001.88
	0145 C	Flintstone—Polish Mountain.	14' Macadam	1914	1.01	62.04	1,741.13
	0146	Eckhart Mines—Red Hill.	Resurfacing 14'	1913	1.64	100.82	1,135.70
	0146 B	Red Hill—Six-Mile House.	Resurfacing 14'	1911	0.94	57.65	880.70
	0147	Gilpin—Green Ridge.	14' Macadam	1913	7.05	433.25	7,774.76
	0148	Allegheny Grove—McKenzie's Store.	14' Chert	1912	2.84	174.49	77.28
	A-10	Green Ridge—Washington County Line.	14' Macadam	1915	7.81	479.78	11,862.25
	A-11	Near Cumberland—Naves Farm.	Resurfacing 14'	1915	1.90	116.84	1,154.43
	A-12	McKenzie's Store—C. & W. E. Ry. Crossing.	14' Concrete.	1915	3.44	211.46	2,681.59
Anne Arundel	0190	Owings—Nutwell Road.	Grading and Surfacing.	1910-12	4.81	\$697.01	\$8,191.82
	0191	Brooklyn—Glenburnie.	14'-16'-18' Water Bound and Tarred Macadam.	1911-12	5.32	771.22	5,440.21
	0192 & S	Nutwell Road—Mt. Zion.	Grading and Surfacing.	1911-12	5.19	752.46	8,392.76
	0194	First Street—Brooklyn.	40' Vitrified Brick.	1912	0.31	45.02	1,631.66
	AA-5	Mt. Zion—Birdsville.	14' Gravel.	1915	4.47	647.82	11,195.30
	AA-6	Birdsville—South River.	14' Gravel.	1915	4.53	656.58	13,829.73
	AA-7	Annapolis—South River.	14' and 16' Concrete.	1914	4.13	598.63	5,960.84
Calvert	030	Owings—Sunderlandville.	Grading and Surfacing.	1910-12	2.94	\$357.26	\$6,486.14
	031	Sunderlandville—Wilburn.	Grading and Surfacing.	1911-12	3.09	375.27	3,906.60
	032	Wilburn—Hunting Creek.	Grading and Surfacing.	1911-13	4.41	535.67	7,718.89
	033	Hunting Creek—Prince Frederick.	Grading and Surfacing.	1911-13	4.26	517.23	7,119.21
	034	Prince Frederick—Port Republic.	Grading and Surfacing.	1913	4.51	547.68	15,774.16
	035	Johnstown—Solomons.	14' Shell Macadam.	1913	1.00	25.73	2,264.44
	C-8	Frazier—Johnson.	Grading and Surfacing.	1913	3.56	432.31	7,616.86
	C-9	Port Republic—Mutual Road.	Grading and Surfacing.	1913	2.03	246.60	3,781.47
	C-10	Mutual Road—Lusby.	Grading and Surfacing.	1913	6.00	728.67	25,825.37
	C-11	Frazier—Lusby.	14' Gravel Surfacing.	1914	4.30	522.37	14,685.99
Caroline	050	Pasapee Landing—Denton.	14' Macadam.	1910	2.58	\$166.87	\$3,295.46
	051	Denton—Watts Creek.	14' Macadam.	1910	1.82	117.64	1,846.83
	052	Federalburg—Dorchester County Line.	14' Macadam.	1910	1.12	72.45	2,339.77
	053	Watts Creek—Two Johns.	14' Macadam.	1910	3.21	207.51	5,032.99
	054	Lewis Trice Road—Federalburg.	14' Macadam.	1912	2.66	171.92	4,138.41
	055	Greensboro—Spring Branch.	14' Macadam.	1911	2.94	190.09	2,523.62
	055 A	Spring Branch—Pasapee Landing.	14' Macadam.	1912	1.13	72.96	983.99
	Co-9	Two Johns—Agner.	14' Macadam.	1915	6.44	416.29	5,875.83
	Co-10	Tanyard—Bethlehem.	14' Macadam.	1913	3.18	205.49	5,045.16
	Co-12	Dover Bridge—Linchester.	14' Concrete.	1914	1.52	98.20	2,306.80
	Co-13	Denton—Federalburg.	14' Concrete.	1914	1.53	98.96	2,048.19
	Co-14	Near Preston—Linchester.	14' Concrete.	1914	1.45	93.91	2,249.32
	Co-15	Queen Anne's County Line—Goldsboro.	14' Concrete.	1915	4.89	316.07	11,550.61
	Co-16	Goldsboro—Greensboro.	14' Stone Macadam.	1915	3.86	249.42	3,607.50
	0265	Approaches to Dover Bridge.	14' Macadam.	1915	0.72	46.70	740.89
Carroll	0200	Sykesville—Eldersburg.	14' Macadam.	1911	1.57	\$143.53	\$4,007.85
	0201	Westminster—Cranberry Station.	14' Macadam.	1911	1.25	114.21	1,787.76
	0202	Eldersburg—Gamber.	14' Macadam.	1912	4.59	419.52	17,520.87
	0203	Gamber—Fenby.	14' Macadam.	1913	5.30	484.51	11,055.87
	0204	Fountain Valley—Frizzelburg.	12' Macadam, 14' Concrete.	1914	1.38	126.11	6,564.63
	0207	Cranberry Station—Meyers Entrance.	14' Macadam.	1913	1.15	105.09	7,650.51
	0208 A	Sherman's Lane—Manchester.	14' Macadam.	1913	1.51	138.00	3,525.95
	0209	Taneytown—Frizzelburg.	14' Concrete.	1914	1.72	157.08	2,970.69
	Cl-6	County Road—Snydersburg Road.	14' Macadam.	1914	4.73	432.25	20,736.99
	Cl-10	Ridgeville—Howard County Line.	14' Macadam.	1913	1.59	145.19	1,115.81
	Cl-11	Copperville Road—Frizzelburg.	14' Concrete.	1915	5.47	500.00	13,322.72

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.
STATE ROADS.
DECEMBER 31, 1915.

CONSTRUCTION—Continued

Surfacing	Bridges and Culverts	Under-drains	Inspection and Supervision	Miscellaneous	Total	Cost per Mile	Rights of Way and Damages	Total, Including Rights of Way and Damages	Administration, Legal and General Engineering Expenses	Total Cost of Road	Cost Per Mile
\$8,763.38	\$1,078.71	\$38.79	\$246.45	\$80.41	\$11,964.52	\$11,964.52		\$11,964.52	\$397.67	\$12,362.19	\$12,362.19
9,570.51	1,581.36	55.34	355.47	59.03	14,158.12	14,158.12		14,158.12	470.18	14,628.30	14,628.30
2,191.31	156.85		141.10	29.12	3,260.81	3,260.81		3,260.81	108.77	3,369.58	3,369.58
15,191.70	7,437.21	317.00	1,314.67	418.24	32,021.30	9,587.22		32,021.30	1,062.72	33,084.02	9,905.40
5,686.40	530.66		216.84	74.76	7,891.19	14,889.04		7,891.19	261.72	8,152.91	15,382.85
1,026.99	4.40		2.55		1,310.97	1,820.79		1,310.97	43.05	1,354.02	1,880.58
1,150.75			.20		1,213.51	1,189.72	\$201.75	1,415.26	46.45	1,461.71	1,432.05
7,043.43	900.78	322.53	359.57	65.40	10,276.70	16,057.34		10,276.70	341.02	10,617.72	16,590.18
28,808.93	9,644.26	791.73	2,031.29	1,146.41	54,207.32	14,153.35		54,207.32	1,799.15	56,006.47	14,622.10
15,862.41		917.87	528.38	189.46	21,691.03	6,974.61	5.00	21,696.03	720.56	22,416.59	7,206.91
5,387.79	448.03		672.03	541.70	8,852.72	8,765.07		8,852.72	293.44	9,146.16	9,055.60
10,695.17	112.63		528.18	7.34	12,579.84	7,670.63		12,579.84	418.06	12,997.90	7,925.55
2,939.98			429.45	52.27	4,360.05	4,638.35		4,360.05	145.02	4,505.07	4,791.63
18,551.48	3,226.11	111.42	1,027.43	609.25	31,733.70	4,501.23	72.90	31,806.60	1,055.92	32,862.52	4,661.35
3,575.88			115.77	189.13	4,132.55	1,455.12		4,132.55	137.09	4,269.64	1,503.40
41,284.26	11,835.59	671.58	2,104.56	598.42	68,836.44	8,813.88	38.00	68,874.44	2,286.32	71,160.76	9,111.49
12,662.82	956.88		503.77	341.95	15,736.69	8,282.47	500.00	16,236.69	539.29	16,775.98	8,829.46
31,956.17	74.56		654.74	182.30	35,760.82	10,395.59	500.00	36,260.82	1,203.21	37,464.03	10,890.70
\$6,665.37	\$4,084.91	\$3,554.60	\$417.37	\$817.86	\$24,428.94	\$5,078.78		\$24,428.94	\$810.41	\$25,239.35	\$5,247.26
43,429.99	7,137.89	1,209.10	1,359.01	2,267.62	61,615.04	11,581.77		61,615.04	2,044.87	63,659.91	11,966.15
7,504.26	2,455.71	1,987.60	962.38	755.86	22,811.03	4,395.19		22,811.03	756.71	23,567.74	4,540.99
16,315.31	963.09	153.62	767.10	254.14	20,129.94	64,935.29	\$1.29	20,131.23	667.73	20,798.96	67,093.42
17,062.53	1,088.58		655.64	203.18	30,853.05	6,902.25	1,024.96	31,878.01	1,057.30	32,935.31	7,368.08
11,712.42	985.94		938.87	240.26	28,363.80	6,261.32	1,854.24	30,218.04	1,002.80	31,220.84	6,892.02
39,801.74	2,912.72	210.00	404.64	204.73	50,093.30	12,129.13	428.26	50,521.56	1,676.14	52,197.70	12,637.67
\$2,700.64	\$5,847.79	\$1,736.02	\$254.00	\$708.95	\$18,090.80	\$6,153.33	\$4.74	\$18,095.54	\$600.66	\$18,696.20	\$6,359.25
2,597.39	1,578.40		690.76	815.94	9,964.36	3,224.71		9,964.36	330.78	10,295.14	3,331.76
1,253.43	1,742.96		232.27	1,078.66	12,561.88	2,848.50		12,561.88	417.00	12,978.88	2,942.06
2,775.70	4,722.20	187.73	368.21	996.92	16,687.20	3,917.18	324.83	17,012.03	564.71	17,576.74	4,126.00
4,018.79	3,083.80	17.93	1,274.10	782.83	25,499.29	5,653.94	84.50	25,583.79	849.23	26,433.02	5,860.98
3,749.83	271.60	6.25	1,176.07	1,020.27	8,514.19	8,514.19	511.85	9,026.04	299.62	9,325.66	9,325.66
3,215.71	356.49		407.60	29.27	12,058.24	3,387.15	2,680.30	14,738.54	489.23	15,227.77	4,277.46
1,391.27	26.88		308.61	36.16	5,790.99	2,852.70		5,790.99	192.21	5,983.20	2,947.39
6,985.74	4,519.48		837.24	197.41	39,093.91	6,515.65	970.43	40,064.34	1,329.91	41,394.25	6,899.04
4,977.93	2,588.59		311.05	235.08	23,321.01	5,423.49	1,626.90	24,947.91	828.16	25,776.07	5,994.43
\$25,167.60	\$3,366.66	\$311.00	\$543.82	\$229.17	\$33,080.58	\$12,821.93		\$33,080.58	\$1,098.22	\$34,178.80	\$13,247.60
17,332.29	866.61	506.75	209.57	141.71	21,021.40	11,550.22		21,021.40	698.28	21,719.68	11,932.89
9,733.80	1,143.97	7.70	298.48	103.65	13,699.82	12,231.98		13,699.82	451.77	14,151.59	12,638.03
36,070.98	8,047.53	587.50	2,056.11	385.64	52,388.26	16,320.33		52,388.26	1,740.06	54,128.32	16,862.40
21,978.70	5,157.50	329.90	1,014.81	281.28	33,272.55	12,508.48		33,272.55	1,104.67	34,377.22	12,923.77
24,461.81	1,571.61	454.02	999.28	240.34	30,440.77	10,354.00	\$1,925.55	32,366.32	1,075.64	33,441.96	11,374.81
11,170.94	616.76		342.50	54.97	13,242.12	11,718.69		13,242.12	440.26	13,682.38	12,108.30
73,209.68	2,184.29		539.98	259.37	82,485.44	12,808.30	886.15	83,371.59	2,768.94	86,140.53	13,375.86
25,908.70	765.26		439.24	76.64	32,440.49	10,201.41	26.30	32,466.79	1,077.26	33,544.05	10,548.44
16,909.09	573.41		182.02	66.86	20,136.38	13,247.62		20,136.38	669.25	20,805.63	13,687.91
17,823.83	255.07		334.54	106.40	20,666.99	13,507.84		20,666.99	686.99	21,353.98	13,956.85
13,943.80	261.83		181.12	87.78	16,817.76	11,598.46		16,817.76	557.98	17,375.74	11,983.27
48,049.21	2,147.12		900.41	182.79	63,146.21	12,913.34	361.58	63,507.79	2,109.36	65,617.15	13,418.64
31,954.18	5,377.49		324.43	193.12	41,706.14	10,804.70	145.00	41,851.14	1,390.13	43,241.27	11,202.40
6,731.72			84.70	59.93	7,663.94	10,641.36		7,663.94	254.80	7,918.74	10,998.25
\$15,240.22	\$1,903.91	\$629.94	\$719.89	\$126.33	\$22,771.67	\$14,504.25		\$22,771.67	\$756.81	\$23,528.48	\$14,986.29
5,948.79	1,006.54	86.32	809.25	165.74	9,918.61	7,934.89		9,918.61	330.34	10,248.95	8,199.16
38,338.74	3,583.38	478.35	1,855.92	723.95	62,920.73	13,708.22	\$294.07	63,214.80	2,101.21	65,316.01	14,230.72
51,714.12	2,307.69	251.40	1,136.79	590.60	67,540.98	12,743.58	241.03	67,782.01	2,252.85	70,034.86	13,214.12
13,132.41	2,053.57	51.00	237.98	134.57	22,300.27	16,159.62	364.30	22,664.57	752.76	23,417.33	16,969.08
7,249.09	3,153.63	53.20	380.91	170.91	18,765.34	16,317.69		18,765.34	624.14	19,389.48	16,860.42
11,108.52	1,236.89		581.94	177.03	16,768.33	11,104.85	410.44	17,208.77	571.34	17,780.11	11,774.91
16,396.94	523.77		336.29	49.81	20,434.58	11,880.57	5.31	20,439.89	679.65	21,119.54	12,278.80
35,960.02	2,774.97	64.06	1,266.44	450.81	61,691.54	13,042.61	591.68	62,283.22	2,070.08	64,353.30	13,605.35
10,070.77	1,567.96			89.51	12,989.24	8,169.33		12,989.24	431.89	13,421.13	8,440.96
65,343.20	8,371.67	200.20	1,319.51	218.65	89,275.95	16,320.01	4.00	89,279.95	2,967.69	92,247.64	16,864.29

STATE ROADS

COST OF COMPLETED

MAY 19, 1908, TO

County	Contract Number	Location of Road	Description	Year When Completed	Miles of Road	CONSTRUCTION	
						Preliminary Surveys and Plans	Grading
Cecil.....	040	Oakwood—Octoraro.....	14' Macadam.....	1911	3.10	\$425.33	\$11,782.06
	041	Rising Sun—Near Mt. Sylmar Road.....	14' Macadam.....	1911	3.25	445.55	13,803.91
	043	Elkton—Singerly.....	14' Macadam.....	1911	2.36	323.61	3,914.31
	044	Elkton—Chesapeake City.....	14' Macadam Concrete.....	1914	4.59	629.37	6,006.77
	045	North Branch (Back Cr'k)—Chesapeake City.....	14' Macadam.....	1912	0.88	120.76	2,238.47
	047	Conowingo—Oakwood.....	14' Concrete.....	1914	1.67	229.02	10,724.43
	049 A	Perryville—Charlestown.....	14' Concrete.....	1914	3.49	478.86	3,850.88
	049 B	North East—Bacon Hill.....	14' Gravel, 14' Concrete.....	1913	2.46	337.29	5,939.16
	049 C	Bacon Hill—Elkton.....	14' Concrete.....	1913	2.28	312.90	9,936.59
	049 D	Charlestown Road—North East.....	14' Macadam.....	1915	5.53	758.45	10,103.55
	Ce-14	Chesapeake City—Bohemia Road.....	14' Concrete.....	1915	5.19	711.46	6,625.35
	Ce-14 A	Through Chesapeake City.....	14' Concrete.....	1915	1.14	156.45	967.92
	Ce-15	Bohemia River—Fredericktown.....	14' Concrete.....	1914	6.01	823.89	10,443.19
	Ce-15 A	Through Cecilton.....	14' Concrete.....	1915	0.96	131.46	259.20
	Ce-17	Through North East.....	14' Concrete.....	1915	0.47	64.25	442.16
Charles.....	0150	White Plains—La Plata.....	14' Gravel.....	1910	4.64	\$440.28	\$5,865.16
	0151	Prince George's County Line—White Plains.....	14' Gravel.....	1912	6.27	595.05	11,258.42
	0152	Waldorf—Beantown.....	14' Gravel.....	1912	3.00	284.59	3,931.92
	0153 & B	Beantown—Bryantown.....	14' Gravel.....	1913	3.84	364.48	9,186.53
	0154 A	Wayside—Thompkinsville.....	14' Gravel.....	1913	5.03	477.04	22,723.67
	0154 B	Wayside—Rock Point.....	10' Concrete.....	1914	4.78	453.44	25,080.68
	Ch-6	Bel Alton—Lothair.....	14' Gravel.....	1915	2.11	200.17	1,953.92
	Ch-7	Glymont—Mason Springs.....	14' Gravel.....	1913	3.19	302.75	6,911.82
	Ch-8	La Plata—Bel Alton.....	14' Gravel.....	1915	4.40	417.58	6,298.62
	Ch-10	Bryantown Road.....	14' Gravel.....	1914	4.92	466.60	7,679.06
	Ch-11	La Plata—Ripley.....	14' Gravel.....	1915	5.66	536.96	8,326.97
Dorchester.....	070	Hurlock—Federalsburg.....	14' Macadam.....	1910	5.33	\$358.95	\$5,712.72
	071 ² & B	Hurlock—Shiloh Church.....	14' Macadam.....	1912	3.05	205.44	7,233.18
	071 ³	East New Market—Shiloh Church.....	14' Macadam.....	1911	2.75	185.01	3,382.66
	072	Mt. Holly—East New Market.....	14' Stone and Shell.....	1911	5.96	401.23	11,566.28
	073	Shiloh Church—Brookview.....	14' Stone and Shell.....	1912	4.40	296.24	7,505.16
	074	Brookview—Sharptown.....	14' Concrete.....	1914	5.57	374.85	8,441.71
	075	Cambridge—Mt. Holly.....	14' Concrete.....	1913	3.41	229.56	3,973.59
	078	Vienna Road—Vienna.....	14' Macadam.....	1913	0.84	56.47	2,445.07
	D-7 A & B	Linchester—East New Market.....	14' Concrete, Bit. Top.....	1914	4.80	323.20	6,188.25
	D-S	Cambridge—Church Creek.....	14' Macadam.....	1915	6.04	406.63	5,708.03
Frederick.....	0240	New Market—New London.....	14' Macadam.....	1912	2.99	\$101.69	\$11,761.92
	0241	New Market—Kempton Road.....	14' Macadam.....	1912	1.34	45.59	4,424.87
	0242	Jefferson—Petersville.....	14' Macadam.....	1912	4.46	151.76	14,718.63
	0243	Petersville—Knoxville.....	14' Macadam.....	1912	2.67	90.78	11,958.94
	0246	Through Middletown.....	14' Resurfacing.....	1914	1.10	37.40	601.41
	0247	Middletown—Frederick (Frederick Pike).....	14' Macadam.....	1913	6.61	224.81	806.62
	0248	Monocacy—New Market.....	14' Macadam.....	1913	5.00	170.07	7,052.31
	F-12	New Market—Plain No. 4.....	14' Macadam.....	1913	3.20	108.90	2,766.40
	F-13	Plsin No. 4—Carroll County Line.....	14' Macadam.....	1913	2.36	80.26	2,905.42
	F-14	Frederick—Monocacy Bridge.....	14' Macadam.....	1913	1.97	67.02	1,102.88
	F-15	Middletown—Washington County Line.....	14' Resurfacing.....	1914	4.55	154.88	4,054.40
	F-16	Near Harmony Gr. North—Emmitsburg Pk.....	14' Resurfacing.....	1915	4.50	153.12	2,657.44
	F-17	Lewistown—Thurmont.....	14' Resurfacing.....	1914	5.66	192.67	2,532.55
	F-20	Through New Market.....	14' Macadam.....	1914	0.66	22.40	7.85
	F-22	Emmitsburg—Pennsylvania State Line.....	14' Macadam.....	1915	1.23	41.88	2,810.29
	0260	Ridgeville—Near Montgomery County Line.....	14' Macadam.....	1911	0.77	26.39	1,319.48
	00240	Frederick—Jefferson.....	14' Resurfacing.....	1915	6.93	235.72	5,737.12
		Emmitsburg Turnpike.....	14' Macadam.....	1912	1.26	42.86	307.27
Garrett.....	0160	Sutton—Allegany County Line.....	14' Macadam.....	1912	3.61	\$293.63	\$6,140.95
	0161	Oakland—Thayersville.....	14' Macadam.....	1910	5.56	452.37	10,034.22
	0162 & B	Thayersville—McHenry.....	14' Macadam.....	1913	6.67	542.69	18,157.62
	9163	McHenry—Accident.....	12' Macadam.....	1914	4.39	357.05	13,769.74
	0154	End of Contract 0160—Willow Run.....	14' Macadam.....	1915	4.83	393.18	1,351.59
	G-6	Hoyes—Accident.....	14' Concrete.....	1915	2.73	222.15	8,855.84
	G-8	Through Grantsville.....	14' Resurfacing.....	1915	0.84	68.41	1,117.83
	G-9	Grantsville—New Germany Road.....	14' Macadam.....	1913	3.03	246.75	7,945.48
	G-10	Grantsville—Keyser.....	Resurfacing.....	1914	5.25	427.38	959.48
	G-11	Keyser—Pennsylvania State Line.....	Resurfacing.....	1914	3.37	274.03	1,481.07
	G-12	Accident—Keyser.....	14' Macadam.....	1915	6.95	565.75	42,795.34

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

STATE ROADS.

DECEMBER 31, 1915—Continued.

CONSTRUCTION—Continued

Surfacing	Bridges and Culverts	Under-drains	Inspection and Supervision	Miscellaneous	Total	Cost per Mile	Rights of Way and Damages	Total, Including Rights of Way and Damages	Administration, Legal and General Engineering Expenses	Total Cost of Road	Cost Per Mile
\$20,935.74	\$6,500.81	\$460.86	\$813.95	\$248.93	\$41,167.68	\$13,279.90	\$36.35	\$41,204.03	\$1,368.42	\$42,572.45	\$13,733.05
31,965.33	6,007.29	496.95	1,081.11	238.77	54,038.91	16,627.36	28.00	54,066.91	1,795.09	55,862.00	17,188.30
16,296.45	1,292.80	1,052.40	566.35	321.04	23,766.96	10,070.75		23,766.96	789.91	24,556.87	10,405.45
39,898.70	5,169.74	2,339.92	1,061.83	399.11	55,805.44	12,158.05	876.03	56,681.47	1,881.58	58,563.05	12,758.83
7,871.31	4,357.65	461.46	1,110.92	282.83	16,443.40	18,685.68	2,000.00	18,443.40	613.10	19,056.50	21,655.11
19,687.47	3,053.68	51.98	611.47	241.16	34,599.21	20,718.09	250.00	34,849.21	1,157.01	36,006.22	21,560.61
34,282.52	4,010.83		306.34	130.81	43,060.27	12,338.19		43,060.27	1,129.92	44,190.19	12,747.90
21,402.36	2,051.23	3,337.91	936.97	231.77	34,239.69	13,918.57	70.00	34,309.69	1,139.71	35,449.40	14,410.32
21,104.74	6,812.73	1,499.37	743.63	198.37	40,518.33	17,771.20	350.64	40,868.97	1,356.89	42,225.86	18,520.11
45,273.25	7,231.88	561.32	1,337.59	237.50	65,503.54	11,845.12	702.00	66,205.54	2,198.60	68,404.23	12,369.66
49,992.92	1,312.64	2,435.13	1,337.96	342.94	62,178.40	11,980.42	129.79	62,308.19	2,069.93	64,378.12	12,403.26
9,668.70	97.20		258.57	998.89	12,147.23	10,655.46		12,147.23	401.68	12,548.91	11,007.82
59,404.95	2,255.84	24.49	1,189.66	371.81	74,513.83	12,398.31	2,354.57	76,868.40	2,552.33	79,420.73	13,214.76
8,301.37	145.80		105.33	86.03	9,029.19	9,405.41		9,029.19	299.82	9,329.01	9,717.72
4,310.90			102.23	60.14	4,979.68	10,595.06		4,979.68	165.29	5,144.97	10,946.74
\$17,179.74	\$5,667.11	\$977.40	\$641.88	\$323.01	\$31,094.58	\$6,701.42		\$31,094.58	\$1,031.90	\$32,126.48	\$6,923.81
27,213.08	5,743.13	312.60	1,521.91	497.88	47,142.07	7,518.67		47,142.07	1,563.97	48,706.04	17,658.11
10,792.00	1,467.72	60.15	716.93	272.09	17,525.40	5,841.80	\$869.00	18,394.40	610.21	19,004.61	6,334.87
13,913.67	2,981.52		1,050.99	309.45	27,806.64	7,241.31	10.00	27,816.64	922.76	28,739.40	7,484.22
28,268.91	5,771.46	1,745.53	748.82	1,267.06	61,002.49	12,127.73	522.82	61,525.31	2,041.47	63,566.78	12,637.53
47,465.57	4,189.61		1,193.15	687.01	79,069.46	16,541.73	211.57	79,281.03	2,630.60	81,911.63	17,136.32
4,209.61	491.73		266.54	181.89	7,303.86	3,461.55	17.86	7,321.72	243.09	7,564.81	3,585.22
9,911.12	1,032.75	287.56	1,790.92	431.74	20,668.66	6,479.20	380.50	21,049.16	698.27	21,747.43	6,817.38
16,348.70	2,332.99		1,050.85	101.22	26,549.96	6,034.08	92.40	26,642.36	883.07	27,525.43	6,255.78
16,828.37	2,688.66		788.68	152.24	28,603.61	5,813.74	1,381.42	29,985.03	994.69	30,979.72	6,296.69
8,772.91	4,952.87		827.36	62.10	23,479.17	4,148.26	125.35	23,604.52	782.61	24,387.13	4,308.68
\$34,227.69	\$3,637.54	\$183.09	\$513.93	\$502.20	\$45,136.12	\$8,468.32		\$45,136.12	\$1,499.34	\$46,635.46	\$8,749.62
25,687.59	501.12		900.21	382.27	34,909.81	11,445.84		34,909.81	1,158.29	36,068.10	11,825.61
21,851.83	590.25		920.22	168.56	27,098.53	9,854.01		27,098.53	898.97	27,997.50	10,180.91
30,580.15	3,977.01	330.52	2,656.53	593.54	50,105.26	8,406.92		50,105.26	1,662.79	51,768.05	8,685.91
35,088.68	790.82		647.24	403.93	44,732.07	10,166.38	\$15.00	44,747.07	1,485.19	46,232.26	10,507.33
57,543.21	1,544.44		810.04	282.78	68,997.03	12,387.26	1,134.38	70,131.41	2,327.59	72,459.00	13,008.80
38,652.14	2,430.44	866.52	820.93	175.70	47,148.88	13,826.65	650.79	47,799.67	1,587.35	49,387.02	14,483.00
10,682.15	250.50		581.33	163.94	14,179.46	16,880.31	12.00	14,191.46	471.49	14,662.95	17,455.89
58,572.37	5,220.17		1,226.71	250.88	71,781.58	14,954.50	65.00	71,846.58	2,385.74	74,232.32	15,465.07
57,607.65	2,316.29	163.40	1,026.34	162.18	67,390.52	11,157.37	74.13	67,464.65	2,239.58	69,704.23	11,540.44
\$18,651.76	\$2,904.83	\$3,576.65	\$1,040.53	\$351.81	\$38,389.19	\$12,839.19		\$38,389.19	\$1,273.99	\$39,663.18	\$12,265.28
9,631.65	616.33		661.09	152.03	15,531.56	11,590.71	\$1.78	15,533.34	516.16	16,049.50	11,977.23
33,920.83	5,510.05	1,847.39	1,557.51	520.19	58,226.36	13,055.24	6.86	58,233.22	1,933.42	60,166.64	13,490.28
18,089.58	4,183.00	153.90	1,435.34	312.42	36,223.96	13,567.03	25.00	36,248.96	1,208.21	37,457.17	14,027.03
7,716.99	308.88		127.51	201.17	8,993.36	8,175.78		8,993.36	298.64	9,292.00	8,447.27
38,846.01	5,737.92		926.01	100.73	46,642.10	7,056.29		46,642.10	1,548.47	48,190.57	7,290.56
47,322.44	3,937.05	190.32	415.92	114.03	59,202.14	11,840.43		59,202.14	1,964.50	61,166.64	12,233.33
23,189.54	4,641.36		269.83	103.31	31,079.34	9,712.29		31,079.34	1,032.31	32,111.65	10,034.89
17,487.01	3,607.46	236.50	318.43	180.29	24,815.37	10,514.99		24,815.37	823.43	25,638.80	10,863.90
11,891.62	323.39		268.00	22.95	13,675.86	6,942.06		13,675.86	454.01	14,129.87	7,172.52
25,129.52	4,066.88		981.84	230.49	34,618.01	7,608.35		34,618.01	1,149.70	35,767.71	7,861.04
21,126.20	3,324.12		841.93	85.49	28,188.30	6,264.07		28,188.30	935.64	29,123.94	6,471.99
29,145.22	8,066.61		1,069.90	93.82	41,100.77	7,261.62	32.49	41,133.26	1,365.48	42,498.74	7,508.61
4,404.15	88.75		75.29		4,598.44	6,967.33		4,598.44	151.91	4,750.35	7,197.50
6,378.69	502.16	1,057.50	347.15	57.30	14,225.27	11,565.26	162.53	14,387.80	478.18	14,865.98	12,086.16
4,869.62	605.72		284.47	100.46	7,206.05	9,358.51		7,206.05	238.22	7,444.27	9,667.88
40,159.49	3,410.88	253.18	827.41	66.33	50,690.13	7,314.59		50,690.13	1,683.11	52,373.24	7,557.47
5,099.85	434.87		534.81	1.85	6,421.51	5,096.44		6,421.51	212.33	6,633.84	5,264.95
\$29,345.66	\$3,894.41	\$234.70	\$1,791.48	\$1,093.59	\$42,794.42	\$11,854.11	\$75.00	\$42,869.42	\$1,423.75	\$44,293.17	\$12,269.58
41,807.60	4,177.11	1,891.80	606.82	534.70	59,504.02	10,702.27		59,504.02	1,975.69	61,480.31	11,057.61
58,787.33	15,762.04	1,792.42	2,324.73	1,472.46	98,839.29	14,818.48	191.91	99,031.20	3,286.32	102,317.52	15,339.96
37,826.33	10,392.49	576.55	1,090.41	658.53	64,671.10	13,731.46	126.91	64,798.01	2,151.23	66,949.24	15,250.40
29,395.66	2,033.69		693.83	296.02	34,599.40	7,163.44		34,599.40	1,148.75	35,748.15	7,401.27
30,861.65	2,705.58	187.71	1,954.45	1,356.12	46,173.50	16,913.37	731.00	46,901.50	1,556.37	48,450.87	17,751.23
6,193.69	457.54	23.58	317.11	140.70	8,318.77	9,903.30		8,318.77	275.00	8,593.77	10,230.68
24,138.57	1,852.57	289.45	697.68	160.68	35,331.18	11,660.46		35,331.18	1,172.15	36,503.33	12,946.30
44,314.91	1,920.34		440.90	63.96	48,126.97	16,074.04		48,126.97	1,597.32	49,724.29	9,471.29
25,918.60	1,256.70		179.91	63.09	27,173.40	8,063.32		27,173.40	903.01	28,076.41	8,331.28
59,931.55	11,287.47	1,798.80	2,322.97	416.93	119,118.81	17,149.40	1,807.64	120,926.45	4,013.80	124,940.25	17,977.01

County	Contract Number	Location of Road	Description	Year When Completed	Miles of Road	CONSTRUCTION	
						Preliminary Surveys and Plans	Grading
Harford.....	0170	Churchville—Aberdeen.....	14' Macadam.....	1911	4.43	\$443.51	\$7,139.20
	0171	St. Ignatius Church—Grafton Shops.....	14' Macadam.....	1910	2.93	293.22	2,293.22
	0172	Kalmia—Deer Creek.....	14' Macadam.....	1912	2.22	222.23	15,134.54
	0173	Little Gunpowder—Benson.....	14' Macadam.....	1913	2.85	285.23	8,260.87
	0174	Dublin—Susquehanna.....	14' Macadam.....	1913	4.24	424.32	11,156.99
	0176	Poole—Dublin.....	12' Macadam.....	1913	1.42	142.29	3,499.01
	0178	Benson—Belair.....	14' Macadam.....	1913	2.35	235.34	3,596.52
	H-10	Grafton Shops—Coopstown.....	14' Macadam.....	1915	2.58	258.37	7,866.75
	H-11	Belair—Churchville.....	14' Macadam.....	1913	5.36	536.56	1,656.65
	H-13	Deer Creek—Poole.....	14' Macadam.....	1913	0.91	91.13	1,781.88
	H-14	End of Contract H-10—Jarrettsville.....	14' Macadam.....	1914	2.65	265.40	6,133.29
Howard.....	0220	West Friendship—Sykesville.....	14' Macadam.....	1911	4.62	\$147.63	\$10,010.69
	0222	Doughoregan—Ellicott City.....	14' Macadam.....	1913	5.18	165.51	739.54
	Ho-4	Lisbon—Near West Friendship.....	14' Surfacing.....	1913	4.77	152.42	35.00
	Ho-5	Doughoregan—Cooksville.....	14' Macadam.....	1914	5.42	173.16	9,018.27
	Ho-6	Lisbon—South Branch Patapsco River.....	Resurfacing.....	1914	3.97	126.81	3,409.44
	Ho-7	Ellicott City—Elloak.....	Resurfacing.....	1914	3.37	107.73	5,154.64
	0260	Ridgeville—Near Montgomery County Line.....	14' Macadam.....	1911	1.51	48.29	2,598.97
Kent.....	0120	Chestertown—Big Woods Road.....	14' Macadam.....	1910	3.26	\$223.91	\$3,401.95
	0121	Big Woods Road—Kennedyville.....	14' Macadam.....	1912	4.58	314.66	7,523.52
	0122	Kennedyville—Locust Grove.....	14' Macadam.....	1912	1.94	133.29	5,031.65
	0123	Chestertown—Fairlee.....	14' Macadam.....	1915	2.95	202.71	4,094.71
	0124 A	Locust Grove—Mill Creek.....	12' Macadam.....	1913	2.01	138.02	6,083.56
	0124 B	Locust Grove—Galena.....	12' Macadam.....	1914	1.08	74.14	2,132.42
	K-7	Mill Creek—Georgetown.....	12' and 14' Macadam.....	1914	3.11	213.65	4,759.16
	K-7 A	Through Galena.....	14' Concrete.....	1914	0.73	50.10	374.30
Montgomery.....	0230	Rockville—Gaithersburg.....	14' Macadam.....	1912	4.39	\$331.82	\$3,697.37
	0231	Darnestown—Gaithersburg.....	14' Macadam.....	1912	6.37	451.15	2,970.79
	0232	Rockville—Norbeck.....	14' Macadam.....	1912	4.21	318.15	4,637.18
	0233	Darnestown—Dawsonville.....	14' Macadam.....	1915	2.97	224.52	10,381.24
	0234	Gaithersburg—Germantown.....	14' Concrete.....	1915	4.02	303.80	9,613.72
	0235	Germantown Road—Cedar Grove.....	14' Macadam.....	1912	3.31	250.15	3,486.71
	0236	Germantown—Cedar Heights.....	14' Macadam.....	1914	2.00	151.04	3,788.38
	0237	Claggettville—Howard County Line.....	14' Concrete.....	1913	2.05	154.80	4,108.16
	M-9	Kings Valley—Claggettville.....	14' Concrete.....	1915	3.65	275.78	4,815.35
	M-11	D. C. Line—Linden (Union Turnpike).....	14' Macadam.....	1913	4.01	303.11	4,718.34
	M-12	Wheaton—Five Miles North.....	14' Macadam.....	1914	5.00	377.61	1,193.53
	M-13	Near Norbeck—Olney.....	Resurfacing.....	1914	2.00	151.04	500.81
	M-14	Through Gaithersburg.....	14' Macadam.....	1914	1.20	90.56	2,920.81
	0260	Howard County Line—Ridgeville.....	14' Macadam.....	1911	0.05	3.76	79.97
Prince George's ..	0130	Meadows—Upper Marlboro.....	14' Macadam.....	1910	5.76	\$365.98	\$6,079.24
	0131	D. C. Line—Camp Springs.....	14' Gravel.....	1911	6.12	388.76	15,968.71
	0132	D. C. Line—Upper Marlboro.....	14' Concrete.....	1914	4.71	299.33	4,394.45
	0133	Camp Springs—T. B.....	14' Gravel.....	1912	5.98	379.79	12,930.77
	0135	D. C. Line—Charles County Line.....	14' Concrete.....	1914	3.59	228.07	4,570.09
	P-8	D. C. Line—Seat Pleasant.....	14' and 19' Concrete.....	1914	2.23	141.79	6,200.75
	P-10	Seat Pleasant—Largo.....	14' Concrete.....	1915	2.59	164.57	4,063.11
	P-12	D. C. Line—Camp Springs.....	14' Amesite.....	1914	4.77	302.96	1,462.33
	P-14	Upper Marlboro—Hills Bridge.....	14' Concrete.....	1915	2.40	152.44	3,601.41
Queen Anne's....	0100	Kent County Line—Ralph's Road.....	14' Macadam.....	1910	3.01	\$228.50	\$2,580.20
	0101	Burrisville—Centreville.....	14' Macadam.....	1911	3.04	230.97	4,665.02
	0102	Starkley Corner—Burrisville.....	14' Macadam.....	1911	3.15	239.11	3,233.19
	0103	Ralph's Road—Church Hill.....	14' Macadam.....	1912	3.48	264.28	7,533.57
	0104	Church Hill—Starkley Corner.....	14' Macadam.....	1911	1.97	149.54	3,316.38
	0105	Centreville—Jackson.....	12' Macadam.....	1913	2.49	189.02	4,108.96
	0107	Centreville—Wye Mills.....	12' Macadam.....	1914	4.65	353.11	14,180.11
	Q-9	Church Hill—Roberts' Station.....	12' and 14' Macadam.....	1915	4.07	308.94	8,123.45
	Q-10	Roberts' Station—County Line.....	14' Concrete.....	1915	5.15	391.12	5,696.55
	Q-11	Through Centreville.....	14' Bit. Concrete.....	1915	0.83	62.92	886.95
	Q-12 & A	Through Church Hill.....	14' Macadam.....	1915	0.66	50.09	820.79

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

STATE ROADS.

DECEMBER 31, 1915—Continued.

CONSTRUCTION—Continued

Surfacing	Bridges and Culverts	Under-drains	Inspection and Supervision	Miscellaneous	Total	Cost per Mile	Rights of Way and Damages	Total, Including Rights of Way and Damages	Administration Legal and General Engineering Expenses	Total Cost of Road	Cost Per Mile
\$28,809.08	\$2,695.49	\$859.77	\$1,348.57	\$561.65	\$41,857.27	\$9,448.59	\$701.34	\$42,558.61	\$1,414.36	\$43,972.97	\$9,926.18
12,651.58	1,206.28	1,833.40	562.07	265.59	19,105.36	6,590.60	.....	19,105.36	634.56	19,739.92	6,737.17
12,175.87	14,801.93	833.38	1,291.90	2,531.94	46,992.09	21,167.61	87.00	47,079.09	1,564.06	48,643.15	21,911.33
16,852.02	2,562.51	410.00	1,375.61	426.02	30,172.26	10,586.76	150.75	30,323.01	1,007.70	31,330.71	10,993.23
24,866.57	4,142.04	2,600.80	1,258.12	568.71	45,017.55	10,617.35	.....	45,017.55	1,495.91	46,513.46	10,970.15
6,870.08	735.16	.....	481.48	125.90	11,853.92	8,347.83	65.00	11,918.92	396.60	12,315.52	8,672.90
25,507.29	1,536.97	158.35	819.13	425.32	32,308.92	13,748.48	3,081.02	35,389.94	1,175.28	36,565.22	15,559.66
21,337.18	1,104.15	.....	292.04	230.08	31,088.57	12,049.83	1,450.00	32,538.57	1,081.43	33,620.00	13,031.90
26,697.40	3,849.75	.....	675.61	262.64	33,678.61	6,283.32	60.00	33,738.61	1,120.54	34,859.15	6,503.57
5,270.00	221.69	.....	189.50	52.69	7,606.89	8,359.22	53.25	7,660.14	254.72	7,914.86	8,697.65
21,219.92	2,387.17	.....	770.52	65.45	30,841.75	11,638.40	66.00	30,907.75	1,026.69	31,934.44	12,050.73
\$21,370.90	\$4,354.29	\$732.40	\$1,332.14	\$382.46	\$38,330.51	\$8,296.65	.....	\$38,330.51	\$1,275.77	\$39,606.28	\$8,572.79
36,689.64	642.35	.....	487.91	123.56	38,848.31	7,499.67	\$145.00	38,993.31	1,297.42	40,290.73	7,778.13
16,770.52	22.59	.....	571.95	26.67	17,579.15	3,685.36	.....	17,579.15	585.31	18,164.46	3,808.06
43,221.42	4,560.37	.....	627.89	60.96	57,662.07	10,638.76	.....	57,662.07	1,919.06	59,581.13	10,992.83
29,687.65	1,537.40	.....	474.98	39.06	35,335.34	8,900.59	.....	35,335.34	1,176.03	36,511.37	9,195.82
23,006.88	1,159.40	.....	690.31	107.41	30,226.37	8,969.25	.....	30,226.37	1,005.92	31,232.29	9,267.74
9,591.67	1,193.08	.....	561.52	200.39	14,193.92	9,399.95	.....	14,193.92	472.42	14,666.34	9,712.81
\$26,038.40	\$1,244.39	\$322.70	\$616.69	\$196.73	\$32,044.77	\$9,829.68	.....	\$32,044.77	\$1,064.57	\$33,109.34	\$10,156.24
35,219.30	7,973.92	22.67	1,141.37	585.41	52,780.85	11,524.20	.....	52,780.85	1,752.81	54,533.66	11,906.91
14,702.31	514.72	.72	864.22	324.32	21,571.23	11,119.19	.....	21,571.23	716.79	22,288.02	11,488.67
28,491.85	402.67	.....	475.26	1,189.64	34,856.84	11,815.88	\$179.07	35,035.91	1,163.41	36,199.32	12,270.95
15,308.94	694.09	.....	586.80	232.96	23,044.67	11,465.01	86.95	23,131.62	768.04	23,899.66	11,890.38
9,267.18	276.82	.....	74.76	50.46	11,875.78	10,906.09	.....	11,875.78	394.64	12,270.42	11,361.50
27,352.50	2,165.09	.....	382.26	153.93	35,026.59	11,262.57	150.00	35,176.59	1,168.54	36,345.13	11,724.23
7,934.02	388.15	.....	.....	73.74	8,820.31	12,082.62	.....	8,820.31	292.86	9,113.17	12,483.79
\$26,679.89	\$1,318.59	\$71.42	\$4,447.52	\$362.90	\$36,909.51	\$8,407.63	\$614.00	\$37,523.51	\$1,247.16	\$38,770.67	\$8,831.59
41,370.74	1,897.24	22.33	2,274.97	375.77	49,392.99	7,754.00	.....	49,392.99	1,641.59	51,034.58	8,011.71
25,200.25	5,723.61	9.60	862.63	402.80	37,154.22	8,825.23	.....	37,154.22	1,234.39	38,388.61	9,118.43
22,880.93	2,110.85	105.60	1,197.69	199.22	42,100.05	14,175.10	.....	42,100.05	1,398.87	43,498.92	14,646.10
39,739.48	5,792.16	.....	1,365.98	141.15	56,955.79	14,168.11	3,153.28	60,109.07	1,997.70	62,106.77	15,449.45
29,912.00	587.35	.....	2,436.65	223.53	36,896.39	11,146.95	.....	36,896.39	1,226.40	38,122.79	11,517.46
20,355.62	1,501.68	846.26	612.32	122.42	27,377.72	13,688.86	.....	27,377.72	910.22	28,287.94	14,143.97
21,901.45	1,971.94	341.80	362.67	99.34	28,940.16	14,117.15	50.00	28,990.16	962.92	29,953.08	14,611.26
37,938.03	1,145.08	.....	443.80	207.62	44,825.66	12,281.00	500.00	45,325.66	1,505.86	46,831.52	12,830.55
28,014.39	1,069.79	.....	431.17	4.90	34,541.70	8,613.89	204.00	34,745.70	1,151.55	35,900.25	8,952.68
40,906.14	3,850.52	.....	547.37	40.64	46,915.81	9,383.16	.....	46,915.81	1,560.15	48,475.96	9,695.19
15,942.38	1,401.94	.....	274.15	68.52	18,638.84	9,319.42	.....	18,638.84	619.59	19,258.43	9,629.22
9,828.92	1,158.86	307.00	502.72	84.13	14,893.00	12,410.83	.....	14,893.00	495.03	15,388.03	12,823.36
295.12	36.71	.....	17.24	6.36	439.16	8,783.20	.....	439.16	14.37	453.53	9,070.60
\$45,933.08	\$1,858.23	.....	\$360.36	\$447.49	\$58,044.38	\$10,076.15	.....	\$58,044.38	\$1,930.54	\$59,974.92	\$10,412.31
19,684.24	8,022.25	\$1,545.51	1,268.28	473.81	47,351.56	7,737.18	\$1,881.65	49,233.21	1,636.62	50,869.83	8,312.06
41,203.38	2,197.26	105.80	1,034.73	151.90	49,386.85	10,485.53	.....	49,386.85	1,642.91	51,029.76	10,834.34
22,971.73	8,742.66	1,587.78	1,024.57	555.80	48,193.10	8,059.05	252.57	48,445.67	1,611.50	50,057.17	8,370.76
33,894.68	2,127.24	.....	442.02	97.25	41,359.35	11,520.71	.....	41,359.35	1,375.37	42,734.72	11,903.82
22,230.35	3,628.29	1,559.87	564.89	251.59	34,577.53	15,505.62	.....	34,577.53	1,149.28	35,726.81	16,020.99
24,952.53	3,948.46	670.95	1,275.01	148.85	35,223.51	13,599.81	.....	35,223.51	1,171.89	36,395.40	14,051.28
28,936.39	6,688.70	.....	255.46	100.75	37,746.65	7,913.34	.....	37,746.65	1,254.79	39,001.44	8,176.40
17,893.63	832.98	440.10	431.00	93.21	23,444.77	9,768.65	240.61	23,685.38	787.54	24,472.92	10,197.05
\$22,794.79	\$1,368.40	.....	\$686.21	\$276.51	\$27,934.61	\$9,280.60	.....	\$27,934.61	\$927.30	\$28,861.91	\$9,588.67
24,200.90	4,786.55	\$292.30	1,004.23	219.90	35,429.87	11,654.56	.....	35,429.87	1,176.19	36,606.06	12,041.47
26,846.32	3,418.48	136.90	853.42	286.78	35,014.20	11,115.62	.....	35,014.20	1,161.47	36,175.67	11,484.34
39,195.45	3,286.62	100.26	1,310.71	404.34	52,095.23	14,969.89	\$879.00	52,974.23	1,758.26	54,732.49	15,727.72
21,648.69	4,015.87	626.70	877.45	187.76	30,822.39	15,645.88	.....	30,822.39	1,022.31	31,844.70	16,164.82
18,256.65	4,484.53	768.86	118.62	134.27	28,060.91	11,269.44	125.45	28,186.36	935.33	29,121.69	11,695.46
37,785.84	4,997.10	1,861.20	430.44	155.28	59,763.08	12,852.28	1,531.19	61,294.27	2,033.90	63,328.17	13,618.96
34,706.01	2,685.54	283.63	468.01	194.14	46,769.72	11,491.33	40.00	46,809.72	1,553.53	48,363.25	11,882.86
51,041.47	6,631.15	338.00	1,115.21	184.35	65,397.85	12,698.61	2,012.02	67,409.87	2,237.30	69,647.17	13,522.72
5,607.89	.....	.....	786.96	70.16	7,414.88	8,933.59	.....	7,414.88	246.21	7,661.09	9,230.23
7,543.42	1,021.31	175.00	223.01	106.41	9,940.03	15,060.65	.....	9,940.03	329.17	10,269.20	15,559.39

STATE ROADS

COST OF COMPLETED

MAY 19, 1908, TO

County	Contract Number	Location of Road	Description	Year When Completed	Miles of Road	CONSTRUCTION	
						Preliminary Surveys and Plans	Grading
St. Mary's.....	020	Mechanicsville—Chaptico Road.....	12' Macadam.....	1911	5.34	\$753.81	\$4,747.56
	021	McIntosh—Leonardtown.....	12' Macadam.....	1911	3.49	492.19	3,647.56
	022 & S	Chaptico—McIntosh Run.....	Grading and Surfacing.....	1911-13	5.25	741.14	8,544.28
	023	Charles County Line—Mechanicsville.....	14' Concrete.....	1914	5.84	824.12	8,439.33
	Sm-6	Leonardtown—St. Mary's City.....	14' Gravel.....	1914	5.83	822.85	20,498.37
	Sm-8	St. Mary's City—Point Lookout.....	14' Gravel.....	1915	6.26	883.03	21,934.83
	Sm-9	Ridge—Confederate Monument.....	14' Gravel.....	1915	3.07	433.28	7,252.56
	Sm-5	Leonardtown—Chingville.....	Grading only.....	1914		346.02	23,188.76
	Sm-7	Chingville—Great Mills.....	Grading only.....	1914		346.02	9,022.43
	Sm-10	Leonardtown—Great Mills.....	14' Gravel.....	1915		692.05	539.25
Somerset.....	090	Princess Anne—King Creek.....	12' Macadam.....	1911	2.91	\$372.74	\$11,602.20
	091	King Creek—Westover.....	14' Macadam.....	1913	3.40	435.39	9,536.54
	092	Westover—Kingstown.....	14' Macadam.....	1913	4.31	551.95	12,615.50
	093	Carroll Corner—Marion.....	14' Macadam.....	1915	5.32	681.29	6,020.82
	094	Allen—Princess Anne.....	14' Concrete.....	1914	6.02	770.74	25,522.98
	095	Crisfield—Near Hopewell.....	14' Concrete.....	1913	2.38	304.49	3,104.59
Talbot.....	0110	Easton—Flemming Switch.....	14' Macadam.....	1910	3.03	\$236.49	\$3,119.96
	0111	Flemming Switch—Skipton Creek.....	14'-16' Macadam.....	1911	4.93	384.63	12,523.43
	0111 B	Skipton Creek—Mill Creek.....	14' Concrete.....	1913	2.01	156.80	1,662.14
	0112	Easton—Wye Mills.....	12' Concrete.....	1914	2.94	229.43	4,142.94
	0114	Near Easton—Dover Bridge.....	12' Shell Macadam.....	1913	3.13	244.18	3,888.02
	0114 B	Easton—Towards Dover Bridge.....	16' Macadam.....	1914	0.76	59.32	758.80
	T-8	Easton—Towards Trappe.....	14' Concrete.....	1915	3.48	271.44	4,493.10
	0265	Approaches to Dover Bridge.....	14' Macadam.....	1915	0.27	21.00	218.29
Washington.....	0210	Fairview Mountain—St. Paul's Church.....	14' Macadam.....	1912-13	4.25	\$313.30	\$7,192.40
	0211	Clearspring—Licking Creek.....	14' Macadam.....	1914	4.51	332.33	9,128.25
	0213	Clearspring Road.....	12' Macadam.....	1913	1.99	146.65	
	0214	Tonoloway—Hancock.....	12' Macadam.....	1913	1.95	143.69	6,892.95
	0215	Conococheague—Hagerstown.....	14' Macadam.....	1913	6.14	452.40	347.56
	0217 A	Exline Road—Tonoloway.....	12' Macadam.....	1913	2.91	148.29	8,011.96
	0217 B	Tonoloway—Harvey.....	12' Macadam.....	1914	1.87	137.79	3,652.30
	0217 C & D	Harvey—Allegany County Line.....	14' Macadam.....	1914	3.63	267.70	5,756.97
	W-7 A	Licking Creek—Millstone.....	14' Macadam.....	1915	4.14	305.10	23,112.37
	W-7 B	Millstone—Hancock.....	14' Macadam.....	1915	3.49	257.20	6,814.77
	W-9	Boonsboro—Frederick County Line.....	14' Macadam.....	1913	2.03	149.60	1,525.53
	W-10	Hagerstown—Boonsboro.....	14' Macadam.....	1914	6.29	463.56	6,370.39
	W-12	Through Boonsboro.....	16' Macadam.....	1915	0.76	56.10	1,229.71
	W-14	Through Clearspring.....	14'-16' Macadam.....	1915	0.45	33.14	818.47
	W-15	Through Hancock.....	14' Concrete.....	1915	1.00	73.82	1,600.03
Wicomico.....	080	Rockawalking Road—Mardella Springs.....	14' Macadam.....	1910	5.76	\$576.78	\$4,465.28
	081 A	Mardella Springs—Riverton.....	14' Macadam.....	1911	4.70	470.64	7,396.03
	081 B	Riverton—Sharptown.....	14' Macadam.....	1912	2.54	254.11	4,449.61
	081 C	State Road—Mardella Springs.....	14' Macadam.....	1912	0.37	37.19	451.64
	082	Salisbury—Fruitland Road.....	18' Bituminous Shell.....	1912	2.16	216.15	1,236.93
	083 A	Salisbury—Rockawalking Road.....	14' Resurf., 13' Conc. Shoulders.....	1914	3.95	395.50	5,085.57
	083 B	Salisbury—Powells Siding.....	14' Resurf., 13' Conc. Shoulders.....	1914	1.69	169.28	2,518.59
	084	Fruitland Road—Allen.....	14' Macadam.....	1913	4.83	483.43	13,909.14
	085 A	Salisbury—Parsonsburg.....	14' Concrete.....	1914	4.33	433.46	7,348.58
Worcester.....	Wi-8	Pittsville—Worcester County Line.....	14' Concrete.....	1914	8.36	837.08	14,052.92
	060	Berlin—Snow Hill.....	12'-14' Macadam.....	1910-12	14.27	\$1,921.84	\$21,164.98
	061	Snow Hill—Pocomoke.....	12' Macadam.....	1914	3.22	433.85	8,954.56
	062	Outens Entrance—Pocomoke.....	12'-14' Macadam.....	1911	2.89	388.97	7,400.84
	063	Snow Hill—Hardship Branch.....	12' Macadam.....	1912	2.42	325.68	5,548.33
	Wo-5	St. Martin—Berlin.....	14' Concrete.....	1914	3.96	533.40	6,894.77
	Wo-6 & A	Berlin—Gnatts Entrance.....	14' Concrete.....	1915	6.82	918.34	13,104.58
	Wo-7	Wicomico County Line—St. Martin.....	14' Concrete.....	1914	3.74	503.48	9,901.55
	Wo-8	Betheden Church—Hardship Branch.....	14' Concrete.....	1914	3.00	403.93	9,361.67
	Wo-9	Pocomoke City—Virginia Line.....	14' Concrete.....	1915	1.21	162.84	1,514.88
	Wo-10	Pocomoke City—Towards Stockton.....	14' Concrete.....	1915	1.20	161.68	948.02

Exhibit "A, Schedule No. I, Part I—(Continued).

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

STATE ROADS.

DECEMBER 31, 1915—Continued.

CONSTRUCTION—Continued								Total, Including Rights of Way and Damages	Admin- istration, Legal and General Engineering Expenses	Total Cost of Road	Cost Per Mile
Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Cost per Mile	Rights of Way and Damages				
\$47,434.61	\$1,627.17	\$370.00	\$892.02	\$545.92	\$56,371.09	\$10,555.38	\$36.00	\$56,407.09	\$1,875.05	\$58,282.14	\$10,914.25
29,912.02	5,954.36	781.10	763.73	405.43	41,956.39	12,021.89		41,956.39	1,393.72	43,350.11	12,421.23
16,813.18	5,486.72	1,159.38	1,541.72	570.71	34,857.13	6,639.45	500.00	35,357.13	1,174.22	36,531.35	6,958.35
55,804.83	1,930.44		1,077.79	184.66	68,261.17	11,688.56	1,637.41	69,898.58	2,323.31	72,221.89	12,366.76
20,787.18	6,552.24		713.40	416.52	49,790.56	8,540.40	1,381.97	51,172.53	1,700.50	52,873.03	9,069.13
15,997.10	7,040.86	400.00	1,152.67	268.43	47,676.92	7,616.12	3,764.11	51,441.03	1,709.76	53,150.79	8,490.54
6,139.74	736.62		469.35	209.00	15,240.55	4,964.35	479.04	15,719.59	522.32	16,241.91	5,290.52
230.13	7,203.85	170.00	1,100.34	483.62	32,722.72		795.81	33,518.53	1,113.39	34,631.92	
230.12	4,944.89		422.59	214.20	15,180.25	7,622.03	410.03	15,590.28	518.35	16,108.63	
25,567.12			50.58	20.16	26,869.16			26,869.16	892.56	27,761.72	8,002.27
\$32,378.69	\$3,957.60	\$187.80	\$1,606.53	\$378.81	\$50,484.37	\$17,348.58	\$63.50	\$50,547.87	\$1,678.01	\$52,225.88	\$17,947.04
26,793.90	2,530.63		1,755.63	255.26	41,307.35	12,149.22	182.60	41,489.95	1,376.37	42,866.32	12,607.74
30,873.84	3,959.29	100.51	2,774.55	398.31	51,273.95	11,896.51	50.00	51,323.95	1,703.71	53,027.66	12,303.40
49,117.88	4,687.74		1,032.21	156.90	61,696.84	11,597.15	1,542.00	63,238.84	2,098.07	65,336.91	12,281.37
62,134.57	4,170.67	14.65	1,342.37	444.55	94,400.53	15,681.15	3,717.28	98,117.81	3,255.48	101,373.29	16,839.41
23,032.26	3,055.58		571.17	202.92	30,271.01	12,718.91	1,690.78	31,961.79	1,060.21	33,022.00	13,874.79
\$24,593.42	\$2,555.12	\$1,999.95	\$288.32	\$218.41	\$33,011.67	\$10,894.94		\$33,011.67	\$1,096.92	\$34,108.59	\$11,256.96
46,829.65	5,099.44	1,034.62	601.43	426.34	66,899.54	13,569.89	\$31.50	66,931.04	2,222.44	69,153.48	14,027.07
18,513.20	724.74	518.50	451.98	144.09	22,171.45	11,030.57	138.00	22,309.45	740.54	23,049.99	11,467.66
31,146.40	2,688.39		520.52	131.63	38,859.31	13,217.45		38,859.31	1,290.64	40,149.95	13,656.44
20,478.28	822.25		580.37	143.77	26,156.87	8,356.83	750.00	26,906.87	893.39	27,800.26	8,881.87
9,460.61	320.67		137.83	111.50	10,848.73	14,274.64		10,848.73	360.46	11,209.19	14,748.93
35,207.30	3,056.10	448.20	806.46	133.46	44,416.06	12,763.24		44,416.06	1,475.36	45,891.42	13,187.19
2,244.52			282.89	59.95	2,826.65	10,469.07		2,826.65	94.00	2,920.65	10,817.22
\$24,414.92	\$5,250.73		\$3,140.02	\$443.74	\$40,755.11	\$9,589.44	\$603.50	\$41,358.61	\$1,374.67	\$42,733.28	\$10,054.89
26,490.98	5,352.77	\$566.00	908.57	671.65	43,450.55	9,634.27		43,450.55	1,443.88	44,894.43	9,954.41
870.39	3.96		213.28		1,234.28	620.24		1,234.28	40.71	1,274.99	640.70
12,077.27	1,742.89	173.50	1,920.64	108.28	22,059.52	11,312.57	11.79	22,071.31	732.80	22,804.11	11,664.41
21,457.00	1,486.90		1,135.86	386.82	25,266.54	4,115.07		25,266.54	840.00	26,106.54	4,251.88
12,694.09	4,005.76	169.27	624.33	96.67	25,750.37	12,811.13	31.41	25,781.78	856.29	26,638.07	13,252.77
10,631.00	1,572.44	29.80	295.56	185.54	16,504.43	8,825.90		16,504.43	548.24	17,052.67	9,119.07
29,500.77	4,636.60		611.76	252.78	41,026.58	11,302.09		41,026.58	1,363.82	42,390.40	11,677.79
30,185.05	5,147.31	958.86	1,005.99	220.80	60,935.48	14,718.71	6,497.64	67,433.12	2,240.46	69,673.58	16,828.36
30,790.56	3,441.93		1,302.40	148.77	42,755.63	12,250.90	108.00	42,863.63	1,424.88	44,288.51	12,690.11
10,905.94	2,391.41		827.61	480.94	16,285.03	8,022.18	1.68	16,286.71	541.46	16,828.17	8,289.74
23,751.83	2,798.72		1,317.55	1,128.66	35,830.71	5,696.46		35,830.71	1,190.12	37,020.83	5,855.66
6,392.68	901.47		140.40	100.80	8,921.16	11,738.37		8,921.16	295.83	9,216.99	12,127.62
4,209.72	949.19		267.95	54.23	6,332.70	14,072.67		6,332.70	210.34	6,543.04	14,540.09
11,447.26	381.16		470.87	58.73	14,031.87	14,031.87		14,031.87	466.82	14,498.69	14,498.69
\$54,279.37	\$1,221.92		\$493.80	\$466.99	\$61,504.14	\$10,677.80		\$61,504.14	\$2,044.07	\$63,548.21	\$11,032.67
33,526.76	2,971.85	\$49.21	1,635.41	360.61	46,410.51	9,874.58		46,410.51	1,542.27	47,952.78	10,202.72
23,053.73	4,192.92	68.40	1,347.88	717.37	34,084.02	13,418.91		34,084.02	1,133.46	35,217.48	13,865.15
2,636.29	11.47		146.67	88.75	3,372.01	9,112.54	\$7.33	3,379.34	112.22	3,491.56	9,436.65
11,432.36	209.01		382.18	222.39	13,699.02	6,342.14		13,699.02	455.31	14,154.33	6,552.93
58,042.67	339.62	33.00	532.63	308.35	64,737.34	16,389.20	228.75	64,966.09	2,157.90	67,123.99	16,993.41
25,161.06	15.00		297.79	201.25	28,362.97	16,782.82		28,362.97	942.67	29,305.64	17,340.61
37,238.10	2,388.94	554.32	1,211.44	440.28	56,225.65	11,640.92		56,225.65	1,867.72	58,093.37	12,027.61
46,473.69	742.56		1,029.30	1,247.27	57,274.86	13,227.45	10.00	57,284.86	1,902.99	59,187.85	13,669.25
89,175.09	9,493.78	37.15	1,152.82	405.19	115,154.03	13,774.41	1,418.20	116,572.23	3,873.31	120,445.54	14,607.36
\$89,604.60	\$6,023.36	\$143.17	\$6,410.52	\$1,219.81	\$126,488.28	\$8,863.93	\$34.50	\$126,522.78	\$4,203.95	\$130,726.73	\$9,160.95
34,280.27	2,133.07		1,517.33	1,168.13	48,487.21	15,058.14		48,487.21	1,610.66	50,097.87	15,558.34
25,869.80	5,030.68	156.06	1,624.03	334.13	40,804.51	14,119.21		40,804.51	1,356.63	42,161.14	14,588.63
16,360.90	1,438.17		690.42	110.38	24,473.88	10,113.17	6.28	24,480.16	813.27	25,293.43	10,451.83
48,076.60	1,973.29		1,125.82	145.17	58,749.05	14,835.62	1,554.01	60,303.06	2,004.06	62,307.12	15,738.12
79,341.39	8,182.79	49.50	1,751.67	416.33	103,764.60	15,214.75	1,735.89	105,500.49	3,505.35	109,005.84	15,982.26
41,374.90	2,522.55		375.36	484.46	55,162.30	14,749.28	1,216.00	56,378.30	1,873.52	58,251.82	15,575.35
32,194.28	3,134.22		860.38	158.69	46,113.17	15,371.06		46,113.17	1,533.04	47,646.21	15,882.07
8,780.13	300.92		177.93	50.90	10,987.55	9,080.62		10,987.55	365.18	11,352.73	9,382.42
9,590.08	319.12		108.00	90.09	11,288.99	9,407.49		11,288.99	375.76	11,664.75	9,720.62

STATE ROADS

COST OF COMPLETED

MAY 19, 1908, TO

County	Contract Number	Location of Road	Description	Year When Completed	Miles of Road	CONSTRUCTION	
						Preliminary Surveys and Plans	Grading
Baltimore.....	0180	City Limits—Mt. Washington (Falls Road)...	40' Vit. Brick, 16' Pitch Mac.	1912	1.13	\$113.51	\$9,670.63
	0181	City Limits—Lansdowne (Westport Road)...	18' Tarred Mac., 49' Vit. Brick.	1911	1.29	129.51	7,521.75
	0182	City Limits—Herring Run (Philada. Road)...	18' Tarred Macadam.	1910	1.95	195.48	3,523.20
	0183	City Limits—Taylor Ave. (Harford Road)...	15'-16'-18' Tarred Macadam.	1912	2.90	290.55	5,826.59
	0186	City Limits—Franklin Ave. (Belair Road)...	18' Tarred Mac., 50' Vit. Brick.	1911	1.95	195.48	6,086.60
	0186 B	Franklin Ave.—Hamilton Ave. (Belair Road)...	Resurfacing.	1912	1.00	100.41	
	0188	City Limits—Bucks Lane (Liberty Road)...	16'-18' Tarred Macadam.	1911	0.98	98.47	1,595.34
	B-6	Kingsville—Harford Co. Line (Belair Road)...	14' Macadam.	1914	2.14	214.40	14,738.75
	B-8	Moore's Run—Perry Hall (Belair Road)...	16' Bit. Concrete.	1914	6.04	605.85	17,023.93
	B-9 & A	Moore's Run—Kingsville (Belair Road)...	16' Macadam.	1914	2.50	250.78	21,223.99
	B-12	St. Timothy's La.—Melvin Ave. (Fredk. Rd.)...	12' Concrete Surfacing.	1914	0.40	40.26	976.13
	B-13	City Limits—St. Timothy's La. (Fredk. Rd.)...	Resurfacing.	1914	2.48	248.84	681.66
	B-14	Melvin Ave.—Patapsco River (Fredk. Rd.)...	Resurfacing.	1915	3.40	341.00	2,281.59
	B-15	Bucks Lane—Old Court Road (Liberty Road)...	14' Macadam.	1915	4.35	436.07	9,881.32
	B-16	City Limits—Lyman Ave. (York Road)...	Bituminous Concrete.	1914	1.33	133.39	1,752.52
	B-17	Lyman Ave.—Towson (York Road)...	18' Bit. Concrete.	1914	2.61	261.94	2,223.47
	B-19	Linden Ave.—Washington Ave. (York Road)...	Bituminous Concrete.	1914	0.49	48.99	1,481.75
	B-20	Washington Ave.—Texas Lane (York Road)...	14' Macadam.	1913	4.56	457.42	2.77
	B-21	Texas—Glencoe (York Road)...	14' Macadam Resurfacing.	1914	5.83	584.50	454.94
	B-22	Glencoe Road—Verona (York Road)...	14' Resurfacing.	1915	1.04	103.80	736.75
		Totals for Counties, not including Baltimore City and the Annapolis and the Washington Boulevards.....			874.50	\$78,040.76	\$1,657,814.39
Baltimore City...	0250	Falls Road.	40' Vitrified Brick.	1911	0.70	\$1,063.31	\$4,810.75
	0251	North Ave.—Atlantic Ave. (Harford Road)...	50' Vitrified Brick.	1912	1.63	2,477.36	40,236.80
	0254	Garrison Ave.	50' Asphaltum.	1912	1.63	2,477.36	14,510.12
	0256	Winder St.—Cromwell St. (Hanover St.)...	39'-6" Vitrified Brick with Concrete Base.	1913	0.53	805.81	2,463.84
	Be-2	Belair Road—North Ave. to City Limits.	Sheet Asphalt.	1915	0.89	1,351.89	6,753.15
	Be-3 & A	Bentalou St.—Yale Ave. (Frederick Road)...	30'-46' Vit. Brick. 26' Sh. Asph.	1914	1.69	2,568.37	10,919.88
	Be-8	Pimlico Circle—Elgin Ave. (Reisterstown Rd.)	Sheet Asphalt.	1915	1.08	1,640.47	50,171.17
	Be-9	Reisterstown Road—Calloway Ave. (Lib. Rd.)	Grading.	1914	1.50	2,279.79	111,971.13
	Be-11	Winder St.—Cross St. (Hanover St.)...	Asphalt and Vitrified Brick.	1914	0.64	972.30	2,432.70
	Be-13	Main Ave.—City Limits (Liberty Road)...	50' Sheet Asph. and Vit. Brick.	1915	0.40	608.24	4,252.64
	Be-14 & B	Cross St.—Lee St. (Hanover St.)...	Sheet Asphalt.	1914	0.36	546.08	2,961.80
	Be-15	Cromwell St.—Light St. Bridge (Light St.)...	15'-5" Bituminous Concrete.	1914	0.52	790.27	1,544.90
	Be-16	Reisterstown Road—Pimlico Cir. to City Lim.	Sheet Asphalt.	1915	1.25	1,900.20	7,961.02
	Be-18 & A	Liberty & Cathedral Sts. (Balto. to Mad. Sts.)	Granite Block and Sheet Asphalt	1915	1.01	1,533.92	1,516.40
	0255	Atlantic Ave.—City Limits (Harford Road)...	50' Vitrified Brick.	1912	0.78	1,183.19	43,700.48
		Totals for Counties and Baltimore City, but not including the Annapolis nor the Washington Boulevards.....			889.11	\$100,239.32	\$1,964,021.17

Exhibit "A," Schedule No. 1, Part I—(Continued).

COMMISSION.

STATE ROADS.

DECEMBER 31, 1915—Continued.

CONSTRUCTION—Continued												
Surfacing	Bridges and Culverts	Under-drains	Inspection and Super-vision	Miscel-laneous	Total	Cost per Mile	Rights of Way and Damages	Total, Including Rights of Way and Damages	Admin-istration, Legal and General Engineering Expenses	Total Cost of Road	Cost Per Mile	
\$60,881.19	\$8,245.25	\$746.09	\$2,537.38	\$653.66	\$82,847.71	\$73,315.66	\$3,438.70	\$86,286.41	\$2,868.11	\$89,154.52	\$78,897.80	
43,862.33	2,567.63	628.88	1,325.90	251.39	56,287.39	43,633.64	6,350.00	62,637.39	2,080.96	64,718.35	50,159.26	
21,561.26	512.52	18.00	429.81	2,877.58	29,117.85	14,932.23		29,117.85	967.49	30,085.34	15,428.38	
36,209.20	4,632.63	1,005.27	1,516.83	353.38	49,834.45	17,184.29	6,641.71	56,476.16	1,877.73	58,353.89	20,122.03	
24,995.79	3,519.08	15.53	1,470.73	425.09	36,708.30	18,824.77	649.95	37,358.25	1,242.28	38,600.53	19,795.14	
7,202.54			234.11	4.68	7,541.74	7,541.74	50.00	7,591.74	251.89	7,843.63	7,843.63	
11,665.03	1,031.60	47.78	550.58	169.63	15,158.43	15,467.79	5,065.50	20,223.93	672.66	20,896.59	21,323.05	
14,714.75	4,733.00	404.00	459.95	335.43	35,600.28	16,635.64	487.00	36,087.28	1,199.34	37,286.62	17,423.65	
89,115.11	7,031.58	829.26	2,419.72	711.49	117,736.94	19,492.87	588.90	118,325.84	3,932.93	122,258.77	20,241.52	
28,700.20	6,826.05	942.63	778.09	347.43	59,069.17	23,627.67	3,731.69	62,800.86	2,086.68	64,887.54	25,955.01	
8,186.88	304.35		209.08	167.46	9,884.16	24,710.40		9,884.16	329.17	10,213.33	25,533.33	
26,445.90	3,751.07		506.04	73.94	31,707.45	12,785.26		31,707.45	1,053.36	32,760.81	13,210.00	
24,677.66	3,610.01		507.34	121.48	31,539.08	9,276.20		31,539.08	1,047.63	32,586.71	9,583.32	
34,466.69	12,738.29		1,454.51	146.47	59,123.35	13,591.57		59,123.35	1,963.60	61,086.95	14,042.98	
37,265.85	2,676.34		716.07	589.71	43,133.88	32,431.39		43,133.88	1,434.06	44,567.94	33,509.73	
40,863.53	556.82	149.50	642.34	437.79	45,134.39	17,292.87	60.00	45,194.39	1,502.76	46,697.15	17,890.63	
15,317.61	1,620.07		373.18	85.64	18,927.24	38,627.02		18,927.24	629.73	19,556.97	39,911.18	
29,597.59	1,217.45		673.44	80.43	32,029.10	7,023.93		32,029.10	1,064.81	33,093.91	7,257.43	
59,522.21	2,730.95	192.54	1,008.16	36.31	64,529.61	11,068.54		64,529.61	2,143.93	66,673.54	11,435.28	
6,642.69	481.11		279.16	79.99	8,323.50	8,003.37		8,323.50	274.79	8,598.29	8,267.58	
\$6,500,165.48	\$770,647.72	\$83,528.98	\$219,227.16	\$84,962.66	\$9,394,387.15	\$10,742.58	\$107,093.69	\$9,501,480.84	\$315,588.92	\$9,817,069.76	\$11,225.92	
\$40,693.15	\$1,062.79		\$863.34	\$288.28	\$48,781.62	\$69,688.03		\$48,781.62	\$1,621.42	\$50,403.04	\$72,004.34	
119,982.96	6,658.47	\$1,922.36	3,396.95	4,142.66	178,817.56	109,704.02	\$1,992.94	180,810.50	6,003.26	186,813.76	114,008.67	
87,665.38	2,999.42	932.24	2,364.05	946.09	111,894.66	68,647.03	7,154.78	119,049.44	3,953.04	123,002.48	75,460.64	
28,883.98			526.76	79.10	32,759.49	61,810.36		32,759.49	1,089.88	33,849.37	63,866.73	
56,798.06	1,477.05		1,198.36	2,548.25	70,126.76	78,794.11		70,126.76	2,327.16	72,453.92	81,408.89	
94,917.59	8,317.37		2,844.86	1,113.74	120,681.81	71,409.36	12,706.83	133,388.64	4,430.98	137,819.62	81,550.07	
76,901.35	15.00		2,137.83	1,333.97	132,199.79	122,407.21	74,194.36	206,394.15	6,856.41	213,250.56	197,453.22	
	5,344.90		2,073.83	791.56	122,461.21	81,640.81	250.00	122,711.21	4,073.64	126,784.85	84,522.23	
33,155.48			347.94	151.96	37,060.38	57,906.84		37,060.38	1,232.81	38,293.19	59,833.11	
30,028.31	27.77		497.41	335.17	35,749.54	89,373.85		35,749.54	1,188.15	36,937.69	92,344.22	
47,287.89	69.15		977.64	167.27	52,009.83	144,471.75		52,009.83	1,728.62	53,738.45	149,272.47	
20,697.99	14.40		307.36	129.88	23,484.80	45,163.08		23,484.80	781.67	24,266.47	46,666.29	
57,821.83	14,645.60		1,278.68	102.70	83,710.03	66,968.02		83,710.03	2,778.30	86,488.33	69,190.66	
53,200.04			956.66	611.41	57,818.43	57,245.97		57,818.43	1,920.69	59,739.12	59,147.64	
54,807.65	32,797.16	982.90	3,445.55	1,483.36	138,400.29	177,436.26	2,545.64	140,945.93	4,681.12	145,627.05	186,700.34	
1,303,007.14	\$844,076.80	\$87,366.48	\$242,444.38	\$99,188.06	\$10,640,343.35	\$11,967.41	\$205,938.24	\$10,846,281.59	\$360,256.07	\$11,206,537.66	\$12,604.22	

STATE ROADS
COST OF LARGE BRIDGES
FROM MAY 19, 1908,

County	Contract Number	Location	Description	Year When Completed
Anne Arundel.....	AA-9	South River Bridge.....	Camp Parole—Birdsville, 1,600' (Not Contracted).....	
Baltimore City.....	0255 BC-3 Br BC-17 BC-20 BC-21 BC-22	Bridge over Herring Run..... Bridge over Gwynn's Falls (Frederick Road)..... Hanover Street Bridge..... Hanover Street Bridge..... Hanover Street Bridge.....	Reinforced Concrete, 3 Span, Luten Design..... Reinforced Concrete, 2 Span, Luten Design..... Steel and Concrete Bridge..... Fill across Patapsco..... Fill for Arcade..... Dredging Channel.....	1912 1914
Baltimore.....	0186 C B-14 A	Ellicott City (over Patapsco River, connecting Baltimore and Howard Counties).....	Reinforced Concrete..... Reinforced Concrete, 3 Span, Luten Design.....	1914 1915
Calvert.....	035 C-7 A C-7 B	Solomon's Island..... Solomon's Island Sea Wall..... Solomon's Island Sea Wall.....	1,125' Sea Wall..... 580' Sea Wall..... 580' Backfill and Roadway.....	1912 1914 1914
Carroll.....	Cl-13 Br	Meadow Brook Bridge on Meadow Branch Turnpike..	Reinforced Concrete Girder Construction, 1-18' Span:..	
Cecil.....	0261	Conowingo Bridge.....	Proportion of Purchase Price.....	
Frederick.....	00241	Bridge over Tuscarora Creek on Emmitsburg Turnpike	Reinforced Concrete, 2-25' Spans.....	1913
Harford.....	0178 B 0261	Bridge over Winter's Run..... Cononwingo Bridge.....	Reinforced Concrete, 2-30' Spans..... Proportion of Purchase Price.....	1913
Howard.....	B-14 A	Ellicott City (over Patapsco River, connecting Baltimore and Howard Counties).....	Reinforced Concrete, 3 Span, Luten Design.....	
Queen Anne's.....	0106	Wye Mills Bridge..... Total Expenditures for Bridges, built or purchased under State Road Fund, to December 31, 1915.....	Reinforced Concrete, 2-16' Spans..... 	1911

Exhibit "A," Schedule No. 1, Part I—(Concluded).

COMMISSION.

IN STATE ROAD SYSTEM.

TO DECEMBER 31, 1915.

CONSTRUCTION—Continued.							Rights of Way and Damages	Total, Including Rights of Way and Damages	Admin- istration, Legal and General Engineering Expenses	Total Cost
Grading	Surfacing	Bridges and Culverts	Underdrains	Inspection and Supervision	Miscella- neous	Total				
					\$762.33	\$762.33		\$762.33	\$25.44	\$787.77
		\$48,100.00				\$48,100.00		\$48,100.00	\$1,597.54	\$49,697.54
\$1,314.00	\$434.79	97,834.37		\$1,681.22	\$859.72	102,124.10	\$1,200.00	103,324.10	3,431.84	106,755.94
4,179.05	1,228.31	609,804.32	\$1,027.37	12,286.65	1,758.36	630,284.06	10,015.84	640,299.90	21,267.24	661,567.14
31,285.48		15,876.00		1,697.79	16.05	48,875.32	188.75	49,064.07	1,629.65	50,693.72
7,249.55		10,513.85		654.24		18,417.64	150.00	18,567.64	616.89	19,184.53
		18,727.79		768.33	120.84	19,616.96		19,616.96	651.63	20,268.59
		\$2,833.33				\$2,833.33		\$2,833.33	\$94.13	\$2,927.46
\$12.08	\$418.67	8,098.11		\$272.72	\$94.99	8,896.57	\$745.00	9,641.57	320.33	9,961.90
		\$15,000.00				\$15,000.00		\$15,000.00	\$498.17	\$15,498.17
\$1,519.12		12,940.38		\$375.88	\$33.23	14,868.61	\$3.00	14,871.61	493.91	15,365.52
2,597.85		818.55		117.20		3,533.60		3,533.60	117.35	3,650.95
		\$1,500.00		\$73.61	\$42.79	\$1,616.40		\$1,616.40	\$53.78	\$1,670.18
		\$11,772.76				\$11,772.76		\$11,772.76	\$390.96	\$12,163.72
\$45.67		\$3,380.00		\$346.08	\$32.32	\$3,804.07		\$3,804.07	\$126.23	\$3,930.30
		\$2,876.60		\$45.00	\$32.30	\$2,953.90		\$2,953.90	\$98.12	\$3,052.02
		11,772.77				11,772.77		11,772.77	391.06	12,163.83
\$12.08	\$372.92	\$8,619.93		\$134.35	\$7.62	\$9,146.90	\$740.00	\$9,886.90	\$328.48	\$10,215.38
		\$1,916.60		\$230.42		\$2,147.02		\$2,147.02	\$71.17	\$2,218.19
\$48,214.88	\$2,454.69	\$882,385.36	\$1,027.37	\$18,683.49	\$3,760.55	\$956,526.34	\$13,042.59	\$969,568.93	\$32,203.92	\$1,001,772.85

STATE ROADS
EXPENDITURES ON UNCOM
UP TO DECEM

County	Contract Number	Location of Road	Description	Miles of Road	CONSTRUCTION
					Preliminary Surveys and Plans
Cecil.....	042 Co-16 Co-18	End of Contract No. 041—Towards Blue Ball..... Newark and Barkdale Roads..... Through Elkton.....	14' Macadam..... 14' Concrete and Macadam..... Not Contracted.....	2.06 3.15 2.20	\$282.72 432.22 302.04
Dorchester.....	D-10 D-11 D-12	Big Mill—Salem..... Linkwood—Mt. Holly..... Salem—Linkwood.....	Not Contracted..... 14' Macadam..... Not Contracted.....	2.78 3.66 2.75	\$187.46 246.23 184.93
Harford.....	H-16	Post Road (Aberdeen—Havre de Grace).....	14' Macadam.....	3.65	\$363.20
Montgomery.....	M-10	Norbeck—Sandy Springs.....	Not Contracted.....	1.25	\$94.83
Prince George's.....	P-13	Meadows—Camp Springs.....	14' Concrete.....	3.01	\$219.37
Somerset.....	S-8 094 A	Marion—Hopewell..... Allen—Mill Dam.....	14' Concrete..... 1300 feet of fill 6'x5' Culvert Outlet.....	4.12	\$528.55
Talbot.....	0113	Bayside—Double Mills.....	Not Contracted.....	2.50	\$194.12
Washington.....	W-13	Through Funkstown.....	14' Concrete.....	0.66	\$49.96
Wicomico.....	083 C 094 A	Salisbury—Toney Tank..... Allen—Mill Dam.....	Not Contracted..... 1300 feet of fill 6'x5' Culvert Outlet.....	0.78	\$79.05
Worcester.....	Wo-11	Stockton—Goodwill.....	14' Concrete.....	1.46	\$196.36
Baltimore City.....	BC-12	Park Circle—Keyworth Avenue (Park Heights Ave.)..	Sheet Asphalt.....	0.58	\$876.87
		Expenditures on Uncompleted State Roads as of December 31, 1915.....			\$4,237.96

COST OF TURNPIKE
MAY 19, 1908, TO

County	Contract Number	Location	Description	Miles of Road	CONSTRUCTION
					Preliminary Surveys and Plans
Baltimore.....		Reisterstown Turnpike..... Frederick Turnpike.....	Purchase Price.....	15.18 6.29	
Carroll.....		Reisterstown Turnpike..... Fenby Turnpike..... Frederick Turnpike.....	Purchase Price..... Purchase Price..... Purchase Price.....	8.51 2.50 1.60	
Frederick.....		Frederick Turnpike..... Emmitsburg Turnpike..... Woodsboro Turnpike..... Jefferson Turnpike.....	Purchase Price..... Purchase Price..... Purchase Price..... Purchase Price.....	27.40 21.54 9.50 8.00	
Howard.....		Frederick Turnpike..... Clarksville Turnpike.....	Purchase Price..... Purchase Price.....	20.20 9.50	
Montgomery.....		D. C. Line (Union Turnpike).....	Purchase Price.....	16.00	
Washington.....		Frederick Turnpike..... Hagerstown—Conococheague Pike..... Hagerstown—Boonsboro Pike.....	Purchase Price..... Purchase Price..... Purchase Price.....	2.60 6.14 9.55	
		Totals.....		164.51	

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.
PLEATED STATE ROADS
BER 31, 1915.

CONSTRUCTION—Continued										
Grading	Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Rights of Way and Damages	Total Construction and Rights of Way and Damages	Administra- tion, Legal and General Engineering Expenses	Total Expenditures and Overhead Expenses
\$1,658.70	\$8,733.49	\$486.14	\$116.28	\$525.72	\$52.64	\$11,855.69		\$11,855.69	\$393.77	\$12,249.46
	191.00			96.92	9.27	729.41		729.41	24.19	753.60
	.68				49.83	352.55		352.55	11.73	364.28
\$2,827.60	\$26,419.16	\$2,171.17		\$664.72	\$29.88	\$217.34		\$217.34	\$7.24	\$224.58
					106.28	32,435.16	\$227.25	32,662.41	1,084.78	33,747.19
					29.89	214.87		214.87	7.13	222.00
\$35.58	\$2,376.11	\$4.52		\$245.93	\$5.00	\$3,030.34		\$3,030.34	\$100.64	\$3,130.98
					\$66.58	\$161.41		\$161.41	\$5.35	\$166.76
\$5,427.94	\$18,746.91	\$377.80		\$693.10	\$105.28	\$25,570.40		\$25,570.40	\$849.23	\$26,419.63
\$3,819.11	\$28,908.14	\$2,479.12		\$832.87	\$72.18	\$36,639.97	\$2,381.00	\$39,020.97	\$1,296.14	\$40,317.11
	148.52			20.13	36.95	205.60	75.00	280.60	9.14	289.74
				\$63.38	\$153.28	\$410.78		\$410.78	\$13.62	\$424.40
\$681.41	\$1,467.00	\$26.19		\$76.01	\$31.96	\$2,332.53		\$2,332.53	\$77.48	\$2,410.01
				\$36.90	\$24.90	\$140.85		\$140.85	\$4.68	\$145.53
	\$148.52			20.12	36.96	205.60	\$75.00	280.60	9.35	289.95
\$730.80	\$3,214.39	\$227.59		\$52.51	\$51.86	\$4,473.51	\$400.00	\$4,873.51	\$161.84	\$5,035.35
	\$2,401.28			\$268.93	\$20.59	\$3,567.67		\$3,567.67	\$118.61	\$3,686.28
\$15,181.14	\$92,755.20	\$5,772.53	\$116.28	\$3,597.24	\$883.33	\$122,543.68	\$3,158.25	\$125,701.93	\$4,174.92	\$129,876.85

(PURCHASE PRICE).
DECEMBER 31, 1915.

CONSTRUCTION—Continued										
Grading	Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Rights of Way and Damages	Total, Including Rights of Way and Damages	Administra- tion, Legal and General Engineering Expenses	Total Cost of Road
\$39.57	\$1,484.17			\$2.29 101.89	\$538.34	\$2.29 2,163.97	\$24,382.25 10,688.34	\$24,384.54 12,852.31	\$809.89 426.84	\$25,194.43 13,279.15
				\$2.30		\$2.30	\$11,516.00	\$11,518.30	\$382.56	\$11,900.86
					\$197.15	197.15	9,091.55	9,288.70	308.52	9,597.22
					124.10	124.10	2,698.16	2,822.26	93.72	2,915.98
							\$45,723.17	\$45,723.17	\$1,518.63	\$47,241.80
							21,605.73	21,605.73	717.62	22,323.35
							89.96	89.96	2.98	92.94
							11,230.00	11,230.00	372.96	11,602.96
							\$33,754.37	\$33,754.37	\$1,121.15	\$34,875.52
							10,058.70	10,058.70	334.09	10,392.79
							\$20,000.00	\$20,000.00	\$664.30	\$20,664.30
							\$4,361.84	\$4,361.84	\$144.86	\$4,506.70
							23,090.04	23,090.04	766.90	23,856.94
							12,054.28	12,054.28	400.79	12,455.07
\$39.57	\$1,484.17			\$106.48	\$859.59	\$2,489.81	\$240,344.39	\$242,834.20	\$8,065.81	\$250,900.01

County	Contract Number	Name of Road	Description	Miles of Road	CONSTRUCTION	
					Preliminary Surveys and Plans	Grading
Allegany.....	98	Westernport.....	12' Macadam.....	1.00	\$87.28	\$8,223.11
	176	Corrigansville.....	14' Macadam.....	0.97	84.64	3,275.34
	194 A	Borden Shaft—Midland.....	14' Macadam.....	1.53	133.64	3,160.07
	195 B	Lonaconing—Pekin.....	14' Macadam.....	0.24	20.98	242.88
	196 & C	Corrigansville.....	12' Macadam.....	2.17	189.52	1,698.64
	225 ²	Old Town.....	14' Macadam.....	0.51	44.59	1,334.79
	228	Nave's Farm.....	12' Macadam.....	0.77	67.18	3,120.10
	229	Virginia Avenue.....	16' Macadam.....	0.54	47.09	2,179.14
	241	Mt. Savage—Morantown.....	12' Macadam.....	1.45	125.59	5,844.41
	241 A	Mt. Savage.....	12' Macadam.....	0.11	9.54	.....
	244 A & B	Frostburg—Allegany.....	12' Macadam.....	1.16	101.36	5,801.48
	256	Luke Road.....	12' Macadam, Cobble Shoulders.....	0.28	24.50	171.62
	258 ²	Bedford Road.....	14' Concrete.....	3.09	269.76	9,085.20
	259	Midland.....	12' Macadam.....	0.71	62.05	3,527.70
	292	Barton Road.....	12' Macadam.....	2.27	198.18	7,694.33
Anne Arundel.....	224 A	Annapolis Road.....	14' Macadam.....	1.50	\$163.36	\$229.60
	224 B	Annapolis Road.....	14' Concrete.....	1.53	166.64	2,568.87
	243	Patapsco Street.....	16' and 24' Macadam.....	1.12	121.96	1,521.89
	263	Mountain.....	14' Concrete.....	1.13	123.12	3,867.63
	264	Pennington Avenue.....	16' Hassamite.....	0.93	101.32	1,642.64
	314	Annapolis (Section 3).....	14' Concrete.....	1.76	191.73	2,876.06
	315	Stewarts Corner—Severn Station.....	14' Concrete.....	0.65	70.83	862.78
	337	Cedar Avenue (Ex. of Pennington Avenue).....	14' Concrete.....	0.08	8.68	162.56
	343	South River.....	9' Gravel.....	1.02	111.05	607.50
Baltimore.....	49	Paper Mill.....	9' Concrete.....	2.42	\$200.44	\$3,739.09
	115	Valley Road.....	14' Tarred Macadam.....	0.50	41.44	1,168.93
	168	Falls Road.....	14' Tarred Macadam.....	3.20	265.10	18,827.56
	180	Park Heights Avenue.....	Oil Surface Treatment.....	5.03	416.36	.....
	198	Falls Road.....	12' Telford Tarred Macadam.....	0.75	61.91	3,098.58
	227 A	Black Rock.....	12' Macadam (Local Stone).....	1.98	164.00	2,316.61
	227 B	Black Rock.....	12' Concrete.....	0.89	73.64	2,893.41
	245	Old Court Road.....	14' Macadam.....	2.01	166.25	4,078.61
	256	Charles Street Extended.....	14' Concrete.....	0.76	62.90	3,941.56
	299	Warren Road.....	12' Concrete.....	1.39	115.07	1,811.55
	306	Old Court Road—End of Section No. 2, Rockland.....	14' Macadam.....	0.72	59.66	5,535.43
	321	Harford Pike.....	Resurfacing.....	10.50	\$69.42	4,731.16
	328	Bridge over North Branch of Patapsco.....	Reinforced Concrete.....	.....	.....	511.03
Caroline.....	164	Dover Bridge.....	12' Shell Macadam.....	0.03	\$3.08	\$2,808.91
	164 B ²	Dover Bridge.....	515' Iron Truss Bridge.....	.....	.....	5,472.04
	221	Greensboro—Boyce Mills.....	12' Shell Macadam.....	1.45	151.83	1,606.44
	222	Federsburg—Nickols.....	9' Shell Macadam.....	1.53	160.18	1,450.80
	234	Bridge Street—Federsburg.....	18', 16', 12' Shell and Pitch Mac.....	0.61	63.84	1,039.66
	240	Denton—Willow Pond.....	16' Shell Macadam.....	1.63	170.58	3,318.83
	240 A & B	Denton—Willow Pond.....	Concrete Approaches and Lift Draw.....	.....	.....	.....
	262	Preston Grove.....	14' Concrete.....	2.92	305.71	2,534.96
	288	Hillsboro Road and Bridge.....	3-30' Span Concrete Bridge and 14' Concrete Road.....	0.04	4.24	1,057.73
	311	Bridgetown.....	9' Shell.....	1.51	158.12	1,295.13
	322	Long's School House.....	10' Shell Macadam.....	1.34	140.27	845.35
	323	Meeting House Branch.....	10' Shell.....	1.21	126.65	1,003.55
Carroll.....	216	Uniontown.....	14' Macadam.....	1.00	\$135.67	\$6,787.08
	242	Black Rock.....	14' Macadam.....	1.12	151.99	2,601.13
	253	Middleburg.....	14' Macadam.....	1.53	207.58	2,673.38
	260	Sams Creek.....	14' Macadam.....	1.51	204.81	3,903.91
	261	Finksburg.....	14' Macadam.....	1.02	138.44	3,629.10
	295	Eldersburg—North Branch Road.....	14' Macadam.....	3.71	503.40	7,554.07
	328	Bridge over North Branch of Patapsco.....	130' Reinforced Concrete.....	.....	.....	511.03
	347	Hamstead—Houkville.....	14' Macadam.....	1.46	198.03	1,497.15

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION

STATE-AIDED ROADS.

TO DECEMBER 31, 1915

CONSTRUCTION—Continued											Adminis- tration, Legal and General Engineering Expenses	Total Cost of Road	Total Cost Per Mile
Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Cost Per Mile	Division of Costs		Counties' Payments				
							State's Payments						
\$5 50.00	\$960.73	\$133.80	\$606.66	\$243.54	\$15,505.12	\$15,505.12	\$8,184.30	\$7,320.82	\$796.29	\$16,301.41	\$16,301.41		
7,190.41	1,802.77		550.30	166.97	13,070.43	13,474.67	6,936.17	6,134.26	842.94	13,913.37	14,343.68		
10,082.12	1,676.30	313.05	687.88	359.46	16,412.52	10,727.13	8,446.18	7,966.34	173.98	16,586.50	10,840.85		
1,639.86	1,170.40		265.00	52.52	3,391.64	14,131.83	1,859.07	1,532.57	671.23	4,062.87	16,928.62		
19,457.52	5,132.00	1,332.05	661.81	129.64	28,601.18	13,180.26	14,767.95	13,833.23	1,468.85	30,070.03	13,857.15		
3,856.88	167.39		133.03	42.84	5,579.52	10,940.23	2,899.99	2,679.53	286.57	5,866.09	11,502.13		
8,767.58	324.80		466.87	298.07	13,044.60	16,941.03	6,938.36	6,106.24	669.91	13,714.51	17,811.05		
3,736.49	188.03		159.90	40.35	6,351.00	11,761.11	3,279.19	3,071.81	326.14	6,677.14	12,365.07		
11,170.75	6,998.03	354.07	653.98	191.51	25,339.34	17,475.40	13,243.54	12,095.80	1,301.34	26,640.68	18,372.88		
1,792.40			25.14		1,827.08	16,609.81	930.88	7,896.20	93.89	1,920.97	17,463.36		
7,374.15	2,119.89	727.28	667.99	30.56	16,822.72	14,502.34	8,905.07	7,917.65	863.92	17,686.64	15,247.10		
1,629.76	30.78		191.47	2.62	2,050.75	7,324.10	1,134.67	916.08	105.28	2,156.03	7,700.10		
32,585.24	2,214.68	720.20	734.79	146.25	45,756.12	14,807.80	23,300.92	22,455.20	2,349.92	48,106.04	15,568.29		
3,942.22	1,315.60	830.50	512.53	79.31	10,269.91	14,464.66	5,461.90	4,808.01	527.47	10,797.38	15,207.57		
16,899.41	3,409.50	391.19	769.04	96.12	29,457.77	12,976.99	15,260.55	14,197.22	1,512.85	30,970.62	13,643.44		
\$15,472.33	\$1,652.75		\$892.89	\$137.76	\$18,548.75	\$12,365.83	\$9,871.38	\$8,677.37	\$952.64	\$19,501.39	\$13,000.92		
15,606.62	539.17		265.95	30.66	19,177.93	12,534.59	9,820.59	9,357.34	984.79	20,162.72	13,178.24		
17,199.19	1,305.52		750.65	185.08	21,084.29	18,825.25	11,061.39	10,022.90	1,082.71	22,167.00	19,791.96		
10,749.94	631.15	\$201.60	272.10	26.90	15,872.50	14,046.46	8,147.31	7,725.19	815.07	16,687.57	14,767.76		
15,413.02	706.58	55.08	126.90	76.45	18,121.99	19,486.01	9,190.08	8,931.91	159.14	18,281.13	19,657.12		
19,122.65	854.08		793.25	26.89	23,864.60	13,559.43	12,438.24	11,426.36	68.79	23,933.39	13,598.51		
7,771.03	386.14		210.03	20.25	9,321.06	14,340.09	4,811.09	4,509.97	478.63	9,799.69	15,076.44		
1,168.20					1,339.38	16,742.25	674.03	665.35	1,225.51	2,564.89	32,061.12		
1,947.60	166.58		266.08		3,098.81	3,038.04	1,737.97	1,360.84	930.60	4,029.41	3,950.40		
\$15,243.83	\$1,863.53		\$395.28	\$102.05	\$21,544.22	\$8,902.57	\$11,120.99	\$10,423.23	\$1,106.60	\$22,650.82	\$9,359.84		
5,787.59	514.19	\$251.35	577.23	38.29	8,379.02	16,758.04	4,517.99	3,861.03	429.81	8,808.83	17,617.66		
28,854.90	20,448.16	278.23	1,759.76	124.52	70,558.23	22,049.46	34,352.62	36,205.61	3,623.90	74,182.13	23,181.91		
32,684.26			560.76	195.72	33,557.10	6,731.03	17,514.97	16,342.13	1,738.81	35,595.91	7,076.72		
6,533.11	1,070.15	161.62	490.90	92.68	11,508.95	15,345.26	5,122.41	6,586.54	591.04	12,099.99	16,133.32		
8,424.05	337.57		537.72	44.81	11,824.76	5,972.10	6,285.65	5,539.11	607.30	12,432.06	6,278.81		
11,031.65	297.04		297.12	49.58	14,642.44	16,452.18	7,531.39	7,111.05	732.10	15,394.54	17,297.23		
14,574.16	1,535.83	178.50	884.72	209.22	21,627.29	10,759.84	11,393.49	10,233.80	1,110.83	22,738.12	11,312.49		
6,662.43	1,407.04	775.50	861.85	37.14	13,748.36	18,089.94	7,355.12	6,393.24	706.13	14,454.49	19,018.06		
15,872.43	1,567.04		408.46	45.47	19,820.02	14,259.00	10,194.51	9,625.51	1,017.90	20,837.92	14,991.30		
5,449.69	1,635.41	489.00	575.80	289.85	14,034.84	19,492.83	7,378.48	6,656.36	720.91	14,755.75	20,494.09		
51,704.97	11,477.46	50.76	3,157.91	1.60	71,993.28	6,856.50	38,011.10	33,982.18	3,697.45	75,690.73	7,208.64		
	5,487.13		67.55	68.33	6,134.04		3,134.95	2,999.09	315.05	6,449.09			
\$785.43	\$144.12		\$343.53		\$4,085.37	\$136,179.00	\$2,215.21	\$1,870.16	\$209.84	\$4,295.21	\$143,173.67		
2,239.22	12,096.80		567.76	\$91.68	20,467.50		10,563.45	9,904.05	1,051.13	21,518.63			
8,351.91	1,785.34		315.67	230.36	12,441.55	8,580.37	6,526.70	5,914.85	638.90	13,080.45	9,020.00		
5,963.73	1,319.33		360.00	244.98	9,499.02	6,208.51	5,085.76	4,413.26	487.81	9,986.83	6,526.34		
6,135.45	10,591.15	\$199.09	828.51	61.20	18,918.90	31,014.59	9,936.23	8,982.67	971.61	19,890.51	32,607.39		
15,961.74	1,191.46		769.80	61.67	21,474.08	13,174.28	11,238.07	10,236.01	1,102.80	22,576.88	13,850.84		
485.38	32,700.62		545.54	.50	33,732.04		17,139.03	16,583.01	1,732.32	35,464.36			
32,669.09	1,194.98	2.76	310.48	87.91	37,105.89	12,707.49	18,904.99	18,200.90	1,905.52	39,011.41	13,360.07		
660.87	2,812.42		550.06	19.80	5,105.12	127,628.00	2,839.60	2,265.52	262.18	5,367.30	134,182.50		
5,907.42	2,195.42		266.00	12.87	9,835.01	6,513.25	5,136.00	4,699.01	505.04	10,340.05	6,847.71		
5,124.10			186.16	20.88	6,316.76	2,475.19	3,332.02	2,981.74	324.38	6,611.14	4,956.07		
4,833.78	1,158.70		200.44	22.16	7,345.28	6,070.47	3,847.26	3,498.02	377.20	7,722.48	6,382.21		
\$5,803.46	\$2,702.64	\$402.29	\$1,044.35	\$212.38	\$17,087.87	\$17,087.87	\$9,189.39	\$7,898.48	\$777.54	\$17,965.41	\$17,965.41		
7,710.39	568.50		828.00	138.27	11,998.33	10,712.79	6,558.30	5,440.03	616.19	12,014.52	11,262.96		
11,194.89	568.53	908.43	531.04	72.77	16,156.62	10,559.88	8,479.20	7,677.42	829.70	16,986.32	11,102.17		
12,994.83	639.67	60.84	487.33	68.03	18,359.42	12,158.55	9,549.98	8,809.44	942.88	19,302.30	12,782.98		
8,454.90	7,669.67	122.00	610.57	83.07	20,687.75	20,282.10	10,728.92	9,958.83	1,062.47	21,750.22	21,323.74		
26,671.35	2,832.97	351.00	414.73	125.02	38,452.54	10,364.56	19,747.85	18,704.69	1,974.78	40,427.32	10,896.85		
	5,487.15		84.22	63.95	6,146.35		3,147.26	2,999.09	315.60	6,461.95			
7,155.00	341.34		309.07	49.02	9,549.61	6,540.82	5,052.86	4,496.75	490.50	10,040.11	6,876.78		

County	Contract Number	Name of Road	Description	Miles of Road	CONSTRUCTION	
					Preliminary Surveys and Plans	Grading
Cecil.....	182	Oxford.....	12' Macadam.....	0.50	\$24.49	\$1,312.09
	184	St. Augustine.....	12' Macadam.....	2.95	144.60	1,734.14
	251	Newark.....	14' Macadam.....	2.10	102.92	3,258.46
	252	Barksdale.....	14' Macadam and Concrete.....	2.02	98.99	5,501.97
	252 Br	Bridge over Big Elk Creek.....	Rebuilding Concrete Arch.....			
	305	St. Augustine.....	12' Macadam.....	2.59	126.92	2,507.95
Charles.....	300	Morgantown.....	9' Gravel.....	1.02	\$146.78	\$1,415.45
	302	La Plata Road.....	12' Macadam.....	1.02	146.78	1,235.64
Dorchester.....	239	Vienna.....	14' Shell and Stone Macadam.....	2.00	\$171.72	\$4,178.51
	239 B	Vienna—Big Mill Road.....	14' Macadam.....	0.68	58.37	1,844.35
	303	Cabin Creek—East New Market.....	14' Macadam.....	2.84	243.83	1,868.95
	307	Waddell's Corner—Hurlock.....	14' Concrete.....	2.25	193.20	2,514.02
Frederick.....	213	Knoxville—Burkittsville.....	9' Macadam, 4'-6' Shoulders.....	1.00	\$199.45	\$1,986.50
	282	Monrovia—Hyattstown.....	14' Macadam.....	1.52	303.19	2,001.05
Garrett.....	291	Oakland—Gortner.....	14' Macadam.....	4.43	\$2,048.25	\$12,089.58
Harford.....	104	Belcamp Road.....	12' Macadam.....	1.57	\$153.67	\$2,310.56
	157 A	Black Horse—Shawsville.....	12' Macadam.....	1.53	149.74	2,893.39
	157 B	Black Horse—Shawsville.....	12' Macadam.....	0.67	65.55	1,286.10
	199	Wesley Chapel.....	12' Macadam.....	1.21	118.42	2,337.55
	200	Post Road.....	14' Macadam.....	3.64	356.17	6,857.24
	257	Hughes Property—York Road Pa. State Line.....	14' Macadam.....	2.85	278.94	4,452.13
Howard.....	95 B	Locust Chapel (Extension).....	12' Macadam.....	0.09	\$14.19	
	206 A & B	Daisy Road.....	14' Macadam.....	2.95	464.10	\$8,192.69
	284	St. John's Lane.....	9' Macadam.....	2.35	369.67	2,437.73
	309 B	Lawyer's Hill Road.....	9' Concrete.....	1.55	243.79	15,810.78
Kent.....	265	Still Pond Road.....	9' Macadam.....	4.14	\$217.39	\$4,900.17
Montgomery.....	141	Brookville.....	12' Macadam.....	1.04	\$176.76	\$2,334.22
	169 A B C	Keusington—Chevy Chase.....	12'-14' Macadam.....	3.25	167.03	6,636.32
	217	Cohasset.....	10' Macadam.....	2.52	129.55	8,925.28
	218	Woodmont—Glen Echo.....	14' Macadam.....	3.31	170.11	7,920.20
	220	Keusington Bridge.....	Reinforced Concrete (Luten Arch).....			253.05
	237	Blair Road.....	14' Macadam and Luten Bridge.....	0.73	37.47	1,276.36
	312	Quince Orchard.....	12' Macadam.....	2.97	29.46	8,165.06
	339	Buck Lodge.....	9' Macadam.....	3.52	180.96	2,823.27
	377	Boyd's—Clarksburg.....	14' Macadam.....	1.26	64.71	1,313.48
	*420	Government Post Road.....	14' Macadam.....	5.38	276.61	7,146.51
Prince George's.....	207	Brandywine.....	14' Gravel.....	1.00	\$80.06	\$1,520.59
	208	Riggs Road Nos. 1 and 2.....	14' Macadam.....	2.16	172.87	3,189.76
	211	Queen Chapel Road.....	14' Concrete.....	1.10	88.03	1,545.56
Queen Anne's.....	269	Flat Iron.....	16' Shell Macadam.....	1.00	\$99.21	\$147.02
	270	Carville—Hope.....	9' Macadam.....	1.97	195.45	2,759.75
	272	Sudlersville.....	9' Macadam.....	1.68	166.71	4,440.25
	273	Finger Board.....	16' Shell Macadam.....	1.02	101.15	677.96
	274	Millington.....	10' Shell Macadam.....	0.78	77.43	577.65
	275	Queenstown.....	16' Shell Macadam.....	0.61	60.55	1,272.65
	276	Winchester.....	16' Shell Macadam.....	1.67	165.69	2,917.54
	277	Stevensville.....	16' Shell Macadam.....	0.49	48.58	1,028.10
	288	Queen Anne Street.....	16' Concrete, Bit. Top.....	0.12	11.87	
	311	Bridgetown Bridge.....	Reinforced Concrete, 2-Span, Luten Design.....			
	333	Millington.....	9' Shell Macadam.....	0.97	96.14	557.37

* The State pays one-third of the cost of this road, Montgomery County one-third and the United States Government one-third.
Exhibit "A," Schedule No. 2, Part I—(Continued).

COMMISSION.

STATE-AIDED ROADS.

DECEMBER 31, 1915.

CONSTRUCTION—Continued											Adminis- tration, Legal and General Engin- eering Expenses	Total Cost of Road	Total Cost Per Mile
Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Cost Per Mile	Division of Costs						
							State's Payments	Counties' Payments					
\$2,922.69	\$933.09				\$5,192.36	\$10,384.72	\$2,608.15	\$2,584.21	\$273.31	\$5,465.67	\$10,931.34		
14,903.87	810.54	\$738.40	\$490.00	\$528.15	19,349.70	6,559.22	10,189.85	9,159.85	968.88	20,318.58	6,887.65		
15,451.92	1,341.87	908.90	450.94	48.16	21,563.17	10,268.17	11,082.59	10,480.85	1,108.67	22,671.81	10,796.11		
15,649.95	4,631.07	1,284.85	580.89	207.26	27,954.98	13,839.09	14,370.06	13,584.92	1,436.95	29,391.93	14,550.46		
	4,570.66		121.09		4,691.75		2,406.42	2,285.33	241.75	4,933.50			
23,657.89	730.52		357.14	39.99	27,420.41	10,587.03	13,972.23	13,448.18	1,422.50	28,842.91	11,136.25		
\$2,702.51	\$308.64	\$398.00	\$199.42	\$5.75	\$5,176.55	\$5,075.04	\$2,761.25	\$2,412.30	\$268.22	\$5,444.77	\$5,338.00		
3,719.35	163.49		174.09	21.35	5,460.70	5,353.62	2,955.46	2,505.24	278.50	5,739.20	5,626.66		
\$16,761.10	\$2,192.39	\$807.56	\$844.93	\$396.87	\$25,353.08	\$12,676.54	\$13,205.32	\$12,147.76	\$1,285.80	\$26,638.88	\$13,319.44		
9,610.63	366.34	333.30	218.72	22.00	12,453.71	18,314.27	6,365.40	6,088.31	644.31	13,098.02	19,261.79		
20,784.93	1,782.07		484.29	91.99	25,256.06	8,892.97	13,038.08	12,217.98	1,292.86	26,548.92	9,348.21		
25,518.59			280.64	75.04	25,581.49	12,702.88	14,565.18	14,016.31	1,483.46	30,064.95	13,362.20		
\$8,408.75	\$1,258.77	\$623.69	\$570.25	\$11.80	\$13,059.21	\$13,059.21	\$6,920.36	\$6,138.85	\$670.75	\$13,729.96	\$13,729.96		
7,263.00	681.61		503.71	59.13	10,811.69	7,112.95	5,838.86	4,972.83	555.30	11,366.99	7,477.28		
\$27,871.84	\$6,351.14	\$320.52	\$1,399.77	\$3.98	\$50,085.08	\$11,305.88	\$26,768.54	\$23,316.54	\$2,571.90	\$52,656.98	\$11,886.45		
\$9,904.13	\$901.86	\$346.10	\$571.78	\$56.74	\$14,244.84	\$9,072.14	\$7,513.51	\$6,731.33	\$731.55	\$14,976.39	\$9,539.10		
12,565.82	484.12		685.12	147.86	16,926.05	11,062.77	8,942.12	7,983.93	869.29	17,795.34	11,630.94		
5,383.38	558.90		310.00	62.76	7,666.69	11,442.82	4,036.50	3,630.19	393.77	8,060.46	12,030.53		
7,507.33	784.70	404.60	375.61	53.06	11,581.27	9,570.29	6,064.18	5,517.09	594.82	12,176.09	10,062.88		
22,313.36	3,721.98		856.64	171.53	34,276.92	9,416.73	17,830.63	16,446.29	1,760.40	36,037.32	9,900.36		
23,288.83	1,645.62		675.57	67.59	30,408.68	10,669.71	15,715.39	14,693.29	1,561.71	31,970.39	11,217.67		
\$1,181.15			\$67.97	\$6.96	\$1,270.27	\$14,114.11	\$679.69	\$590.58	\$65.25	\$1,335.52	\$14,839.11		
21,164.70	\$4,322.24	\$69.80	1,484.82	251.98	35,950.33	12,186.55	19,038.12	16,912.21	1,846.28	37,796.61	12,812.41		
16,891.44	1,169.20	297.00	242.62	51.93	21,459.59	9,131.73	11,206.91	10,252.68	1,102.06	22,561.65	9,600.70		
8,697.80	1,625.97	203.94	972.91	129.66	27,684.85	17,861.19	14,509.10	13,175.75	1,421.81	29,106.66	18,778.49		
\$19,796.83	\$921.53	\$65.15	\$2,057.70	\$948.87	\$28,907.64	\$6,982.52	\$15,370.91	\$13,536.73	\$1,484.28	\$30,391.92	\$7,341.04		
\$11,450.06	\$746.17	\$1,322.10	\$383.46	\$22.18	\$16,434.95	\$15,802.83	\$8,424.36	\$8,010.59	\$844.11	\$17,279.06	\$16,614.48		
21,019.61	3,323.00	1,052.00	1,370.00	264.11	33,832.07	10,409.86	17,989.09	15,842.98	1,737.48	35,569.55	10,944.47		
20,032.44	3,002.07	703.18	919.07	167.46	33,879.05	13,444.06	17,547.56	16,331.49	1,739.89	35,618.94	14,134.50		
23,004.66	1,099.04	359.50	934.61	185.45	33,673.57	10,173.28	17,481.88	16,191.69	1,729.35	35,402.92	10,695.74		
1,485.00	4,124.44			9.06	5,871.55		2,935.77	2,935.78	301.60	6,172.15			
3,882.52	8,214.14	7.05	919.90		14,337.44	19,640.32	7,406.04	6,931.40	736.29	15,073.73	20,648.94		
24,509.90	2,910.24	19.65	523.79	94.80	36,252.90	12,206.36	18,450.47	17,802.43	1,861.79	38,114.69	12,833.22		
8,741.51	1,191.35	162.54	455.55	75.62	13,630.80	3,872.38	7,171.46	6,459.34	700.09	14,330.89	4,071.27		
6,969.02	131.30	349.91	176.52	40.95	9,045.89	7,179.27	4,664.03	4,381.86	464.53	9,510.42	7,547.95		
41,451.85	1,436.79				50,311.76	9,351.62	17,945.85	32,365.91	2,583.86	52,895.62	9,831.90		
\$4,656.46	\$713.81		\$298.75	\$106.77	\$7,376.44	\$7,376.44	\$3,572.20	\$3,804.24	\$378.92	\$7,755.36	\$7,755.36		
16,921.04	1,383.19	\$2,729.49	328.90	179.70	21,904.95	11,530.06	12,734.46	12,170.49	1,279.33	26,184.28	12,122.35		
12,754.94	320.59		178.65	22.90	14,910.67	13,555.15	7,000.13	7,310.54	765.92	15,676.59	14,251.44		
\$5,912.06	\$192.88	.75	\$577.07		\$6,928.99	\$6,928.99	\$3,719.58	\$3,209.41	\$355.87	\$7,284.86	\$7,284.86		
7,630.39	286.91		519.63	\$29.09	11,421.22	5,797.57	6,068.14	5,353.08	586.99	12,008.21	6,095.53		
10,600.12	200.93		572.09	25.58	16,005.68	9,527.19	8,310.03	7,695.65	821.02	16,826.70	10,015.89		
4,409.38	110.16		345.90	36.75	5,681.30	5,669.90	3,062.26	2,619.04	291.78	5,972.08	5,855.96		
3,974.73	389.42	\$270.52	291.06		5,380.81	7,154.88	2,943.41	2,637.40	286.64	5,867.45	7,522.37		
3,581.64	173.32		299.91	13.20	5,401.27	8,854.54	2,797.51	2,603.76	277.41	5,678.68	9,309.31		
9,549.19	793.38		578.16	320.38	14,324.34	8,577.45	7,491.72	6,832.62	735.73	15,060.07	9,018.00		
2,733.26	591.27		239.46	2.86	4,643.53	9,476.59	2,406.59	2,176.94	238.47	4,882.00	9,963.26		
1,420.80				28.17	1,460.84	12,173.67	750.44	710.40	75.02	1,535.86	12,798.83		
	1,884.51				1,884.51		904.76	979.75	97.15	1,981.66			
1,100.00			124.63	3.08	1,881.22	1,942.79	1,052.53	828.69	97.01	1,978.23	2,039.41		

STATE ROADS
COST OF COMPLETED
FROM JUNE 1, 1910, TO

County	Contract Number	Name of Road	Description	Miles of Road	CONSTRUCTION	
					Preliminary Surveys and Plans	Grading
Somerset	219	River Road	12' Macadam	1.02	\$115.36	\$1,241.47
	233	Princess Anne	14' Hassamite	2.01	227.35	8,316.70
Talbot	164 B ¹	Dover Bridge Road	12' Shell Macadam	0.24	\$82.69	\$2,808.91
	164 B ²	Dover Bridge	12' Shell Macadam	0.83	285.68	5,472.03
	266 & A	Miles River Bridge and Road	9' Shell Macadam and Retaining Wall	1.06	364.85	
	266 B	Miles River Bridge	Reinforced 1100' Concrete Bridge			
	266 B ¹	Miles River Bridge	60' Lift Draw			
	288	Hillsboro Road and Bridge	3-30' Span Concrete Bridges, 14' Concrete Road	1.06	365.00	1,332.37
	289	Peach Blossom and Trippe's Creek Bridge	850' Reinforced Concrete			2,710.20
	338	B. C. & A. Station—Llandoff	14' Concrete	1.25	430.27	352.02
Washington	155	Zion Church Road	12' Macadam	1.00	\$242.70	\$1,467.24
Wicomico	191	Meadow Bridge Road	12' Shell Macadam	1.76	\$122.42	\$1,438.93
	197	Middle Neck	12' Macadam	5.95	413.99	4,632.50
	278	Limits of Salisbury—Toney Tank	16' Shell	1.63	113.41	1,210.53
	281	Hebron—Spring Hill Church	14' Macadam	1.27	88.39	1,575.93
	345	Salisbury—Mt. Herman	14' Macadam	2.61	181.56	1,943.17
Worcester	209	Showell Road	14'-12' Macadam	1.07	\$54.10	\$623.04
	248	Bishopville—Delaware Line	10' Macadam	1.00	50.59	1,262.80
	283	Diving Creek	14' Macadam	2.42	122.39	2,832.13
	304	Girdletree	12' Macadam	1.03	52.09	1,091.03
Total Cost of Completed State-Aided Roads from June 1, 1910, to December 31, 1915.				195.52	\$20,196.56	\$376,608.23

Exhibit "A," Schedule No. 2, Part 1—(Concluded).

COMMISSION.

STATE-AIDED ROADS.

DECEMBER 31, 1915.

CONSTRUCTION—Continued							Division of Costs		Admin- istration, Legal and General Engineer- ing Expenses	Total Cost of Road	Total Cost Per Mile
Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscel- laneous	Total	Cost Per Mile	State's Payments	Counties' Payments			
\$8,271.55 24,413.85	\$833.48 4,400.82	\$284.65	\$624.69 779.19	\$146.03 64.26	\$11,517.23 38,202.17	\$11,291.40 19,006.05	\$6,176.65 19,811.28	\$5,340.58 18,390.89	\$587.26 1,966.03	\$12,104.49 40,168.20	\$11,867.14 19,984.17
\$785.73 2,239.24	\$144.12 12,096.79		\$542.21 567.15	\$58.68 24.86	\$4,422.34 20,685.75	\$18,426.41 24,922.59	\$2,552.18 10,781.74	\$1,870.16 9,904.01	\$227.13 1,062.43	\$4,649.47 21,748.18	\$19,372.79 26,202.62
	3,025.30		297.92	10.00	3,698.07	3,488.74	2,185.42	1,512.65	189.94	3,888.01	3,667.93
	52,468.15		1,239.73	15.29	53,723.17		27,489.09	26,234.08	2,759.17	56,482.34	
	6,075.96		45.00		6,120.96		3,082.98	3,037.98	314.38	6,435.34	
9,665.16 4,735.47 2,848.86	2,979.90 34,429.78 57.50		748.25 2,152.27 283.54	19.80 18.62 36.02	15,110.48 44,046.34 4,008.21	14,255.16 44,046.34 3,206.56	8,103.24 23,108.61 2,379.02	7,007.24 20,937.73 1,629.19	776.05 2,262.18 205.85	15,886.53 46,308.52 4,214.06	14,987.29 10,559.44 3,371.24
\$3,578.91	\$857.58	\$70.00	\$503.37	\$204.69	\$6,924.49	\$6,924.49	\$3,894.27	\$3,030.22	\$355.95	\$7,280.44	\$7,280.44
\$9,327.03 32,296.56 11,177.15 9,097.03 21,561.77	\$384.33 4,950.63 252.39 772.57 2,017.18	\$714.10	\$472.09 2,034.22 406.96 361.43 477.19	\$82.86 632.47 57.33 116.97 55.18	\$11,827.66 45,674.53 13,217.79 12,012.34 26,236.05	\$6,720.26 7,676.39 8,109.07 9,458.53 10,521.26	\$6,229.14 24,070.36 6,897.74 6,279.16 13,474.98	\$5,598.52 21,604.17 6,320.05 5,733.18 12,761.07	\$612.12 2,365.28 677.82 616.99 1,324.09	\$12,439.78 48,039.81 13,895.61 12,629.33 27,560.14	\$7,068.05 8,073.91 8,524.91 9,944.35 10,559.44
\$8,267.38 8,819.53 18,897.03 8,511.96	\$1,027.40 1,372.53 569.09 504.14	\$231.00	\$563.26 498.63 852.91 13.35	\$196.67 59.69 94.43 33.97	\$10,731.85 12,291.77 23,367.98 10,376.56	\$10,029.76 12,294.77 9,656.19 10,074.33	\$5,735.84 5,988.98 12,032.73 5,406.37	\$4,996.01 5,305.79 11,335.25 4,970.19	\$550.95 631.40 1,199.84 532.87	\$11,282.80 12,926.17 24,567.82 10,909.43	\$10,544.67 12,926.17 10,151.99 10,591.67
\$1,387,938.28	\$374,091.10	\$24,368.44	\$69,439.65	\$12,365.87	\$2,265,008.13	\$11,584.53	\$1,169,560.43	\$1,095,417.70	\$116,323.04	\$2,381,331.17	\$12,179.48

STATE ROADS
EXPENDITURES ON UNCOMPLETED
UP TO DECEM

County	Contract Number	Name of Road	Description	Miles of Road	CONSTRUCTION	
					Preliminary Surveys and Plans	Grading
Allegheny.....	317	Barton—Moscow.....	14' Macadam.....	2.50	\$218.28	
	319	Legislative (Ocean Section).....	12' Bit. Concrete.....	1.46	127.48	\$3,358.25
Anne Arundel....	325	Annapolis (Section 5).....	Not Contracted.....	1.14	\$124.16	
	342	Bay Ridge.....	9' Shell.....	1.12	122.00	\$996.13
	362	Stone House Cove.....	16' Concrete.....	0.83	90.40	1,022.40
Baltimore.....	198 B	Falls Road.....	14' Macadam.....	0.49	\$40.56	
	363	Monkton.....	14' Macadam.....	1.90	157.28	\$864.00
	364	North Branch—Ward Chapel.....	14' Macadam.....	1.12	92.72	
	400	Falls Road.....	14' Macadam.....	2.63	217.75	
	403 A	City Limits—Haywood Ave. (Reisterstown).....	40' Asphalt.....	0.93	77.03	227.07
Calvert.....					\$349.21	
Caroline.....	336	Concord Camp.....	10' Shell.....	2.03	\$212.52	
	353	Denton—Andersontown.....	Not Contracted.....	2.70	282.65	
	354	Marydel—Templeville.....	9' Shell.....	2.06	215.61	
	416	Hillsboro—Denton.....	9' Shell.....	1.00	104.71	
Cecil.....	350	Warwick—Cecilton.....	14' Concrete.....	2.53	\$123.98	\$1,104.85
	366	Rowlandsville—Five Points.....	14' Macadam.....	2.03	99.49	3,278.02
	409	Aiken Ave. towards Port Deposit.....	16' Concrete.....	0.27	13.23	
Dorchester.....	318	Shorters Wharf Road.....	9' Shell.....	8.00	\$686.83	\$3,376.41
	320	Hambrooks Shore.....	14' Shell.....	2.00	171.73	1,631.13
	340	Nanticoke River.....	9' Shell.....	1.97	169.16	1,444.81
Frederick.....	294	Brunswick—Petersville.....	14' Macadam.....	2.87	\$572.43	\$3.60
	348	Lewistown—Creagerstown.....	Macadam on Concrete...	4.35	867.64	
Harford.....	279	Norrisville—Pennsylvania State Line.....	Not Contracted.....	1.30	\$127.22	
Kent.....	268	Rock Hall.....	Not Contracted.....	3.03	\$159.09	
	349	Galena—Lambson Station.....	14' Concrete.....	2.39	125.51	\$1,046.52
Montgomery.....	399	Bradley Lane—Chevy Chase Lake.....	Not Contracted.....	1.20	\$61.69	
Prince George's...	398	Riggs Road.....	14' Concrete.....	1.59	\$127.25	\$2,647.26
Queen Anne's.....	334	Mason's Branch.....	9' Shell.....	1.73	\$171.61	
	335	Chester.....	16' Shell.....	1.44	142.85	\$368.28
	406	Water Street (Through Centreville).....	14' Concrete.....	0.44	43.66	202.50
St. Mary's.....	407	Through Leonardtown.....	14' Gravel.....	1.18	\$311.20	
Talbot.....	344	Tunis Mills.....	10' Shell.....	1.57	\$540.49	
	415	Harrison Street.....	Not Contracted.....	0.34	117.04	
Washington.....	280	Smithsburg—Pennsylvania State Line.....	14' Macadam.....	4.60	\$1,116.54	\$5,223.75
	382	Fiddleburg.....	9' Macadam.....	1.06	257.24	882.00
	383	Chewsville—Old Forge.....	9' Macadam.....	1.31	317.80	1,188.72
	384	Spielman Station—Downsville.....	9' Macadam.....	2.42	584.87	1,254.17
	393	St. Paul's.....	Resurfacing 9'.....	1.86	451.47	351.00
Wicomico.....	396	Salisbury—Anders Mill.....	14' Shell.....	1.99	\$138.45	
Grand Total.....				75.37	\$9,930.83	\$30,470.87

Exhibit "A," Schedule No. 2, Part II.

REPORTS OF THE STATE ROADS COMMISSION

129

COMMISSION.

STATE-AIDED ROADS.

BER 31, 1915.

CONSTRUCTION—Continued.

Surfacing	Bridges and Culverts	Underdrains	Inspection and Supervision	Miscellaneous	Total	Division of Costs		Administration, Legal and General Engineering Expenses	Total Cost of Road
						State's Payments	Counties' Payments		
\$9,610.96	\$778.22		\$3.52 636.40		\$221.80 14,511.31	\$221.80 7,637.60		\$11.35 745.32	\$233.15 15,256.63
\$774.00 763.81	\$141.07 21.60		\$30.00 250.14 195.00		\$154.16 2,283.34 2,093.21	\$154.16 1,327.74 1,189.30		\$7.91 117.29 107.51	\$162.07 2,400.63 2,200.72
\$2,719.80	\$474.84		\$282.69 461.97 8.15 3.80 596.15		\$323.25 4,677.89 100.87 221.55 15,928.14	\$323.25 2,648.57 100.87 221.55 8,312.66	\$2,029.32	\$16.59 240.35 5.13 11.36 818.04	\$339.84 4,918.24 106.00 232.91 16,746.18
					\$349.21	\$349.21		\$17.91	\$367.12
			\$160.79 1.64 60.07 34.69		\$373.31 284.29 275.68 139.40	\$373.31 284.29 275.68 139.40		\$19.16 14.60 14.16 7.15	\$392.47 298.89 289.84 146.55
\$9,547.55 8,396.64	\$331.88 137.16		\$331.34 357.51 .83		\$11,439.60 12,268.82 14.06	\$5,947.46 6,362.91 14.06	\$5,492.14 5,905.91	\$587.73 629.04 1.58	\$12,027.33 12,897.86 15.64
\$23,284.89 6,060.70 1,703.38	\$921.91 396.31 24.60		\$738.08 484.76 474.23	\$280.69 179.65	\$29,288.81 8,744.63 3,995.83	\$15,356.86 4,700.55 2,319.61	\$13,931.95 4,044.08 1,676.22	\$1,481.47 453.53 223.64	\$30,770.28 9,198.16 4,219.47
	\$972.40		\$163.81 23.27		\$1,712.24 890.91	\$1,224.24 890.91	\$488.00	\$87.94 45.75	\$1,800.18 936.66
			\$5.05		\$132.27	\$132.27		\$6.80	\$139.07
\$8,282.20	\$228.15		\$3.33 273.00		\$162.42 9,955.38	\$162.42 5,176.94		\$8.37 511.28	\$170.79 10,466.66
			\$75.00		\$136.69	\$136.69		\$7.05	\$143.74
\$3,253.19	\$403.14		\$372.14		\$6,802.98	\$3,651.18	\$3,151.80	\$349.39	\$7,152.37
\$886.73			\$33.74 127.22 120.54		\$205.35 1,525.08 366.70	\$205.35 897.57 265.45		\$10.55 78.34 18.84	\$215.90 1,603.42 385.54
			\$15.39		\$326.59	\$326.59		\$16.75	\$343.34
			\$3.78 169.23		\$544.27 286.27	\$544.27 286.27		\$27.94 14.69	\$572.21 300.96
\$6,435.00 621.00 2,857.50 1,760.54 1,806.82	\$1,287.79 951.30 110.16 75.60 1,073.70	\$157.66	\$573.95 275.47 277.67 353.77 284.61		\$14,794.69 2,987.01 4,751.85 4,028.95 3,967.60	\$8,242.58 1,759.86 2,673.66 2,483.79 2,351.84	\$6,552.11 1,227.15 2,078.19 1,545.16 1,615.76	\$759.85 153.35 243.98 206.98 203.84	\$15,554.54 3,140.36 4,995.83 4,235.93 4,171.44
			\$69.24		\$207.69	\$207.69		\$10.70	\$218.39
\$102,828.71	\$9,293.72	\$157.66	\$8,331.97	\$460.34	\$161,474.10	\$89,880.41	\$71,593.69	\$8,293.21	\$169,767.31

STATE ROAD
ROADS AND BRIDGES (ANNAPOLIS)
EXPENDITURES FROM JUNE 1

Location of Roads and Bridges	Contract Number	Miles of Road	Description	CONSTRUCTION	
				Preliminary Surveys and Plans	Grading
Annapolis—Baltimore Boulevard.....	0270	3.05	16' Pitched Macadam.....	\$418.96	\$8,767.4
Annapolis—Baltimore Boulevard.....	0271A	1.84	16' Macadam.....	239.40	4,375.8
Annapolis—Baltimore Boulevard.....	0271C	2.65	16' Macadam.....	359.11	18,454.7
Annapolis—Baltimore Boulevard.....	0272	3.07	16' Macadam.....	418.96	6,612.3
Annapolis—Baltimore Boulevard.....	0273	5.28	16' Macadam.....	718.21	12,090.7
Annapolis—Baltimore Boulevard.....	AB5	0.70	16' Macadam.....	89.78	
Annapolis—Baltimore Boulevard.....	AB6	3.76	16' Concrete.....	508.73	5,785.9
Annapolis—Baltimore Boulevard.....	AB7	....	Slag Fill Adjoining College Creek Bridge.....		8,062.0
Annapolis—Baltimore Boulevard.....	AB8	0.83	Brick Asphalt and Stone Block Paving.....	89.78	450.0
Annapolis—Baltimore Boulevard.....	AB9	....	Pumphrey's Undergrade Crossing.....		
Annapolis—Baltimore Boulevard.....	B18	1.14	16' Concrete.....	149.63	1,551.6
Totals.....		21.62		\$2,992.56	\$66,150.8
Severn River Bridge.....	0270B	....	Repairs to Bridge.....		
College Creek Bridge.....	AB5 Br.	....	Reinforced Concrete—Bascule Span.....		
Nanticoke River Bridge.....	0262	....	640' Through Plate Girder Bridge—Back Wall—Back Wall.....		
Nanticoke River Bridge.....	0262B	....	Approaches to Bridge.....		\$11,453.6
Conowingo Bridge.....	0261*	....	Purchase Price.....		
Totals.....				\$2,992.56	\$77,604.4

* Contract price and expenses incidental to the purchase of the Conowingo Bridge aggregated \$88,345.53; excess of \$23,345.53 over authorized purchase price of \$65,000 was charged in equal parts against Cecil and Harford Counties allotments from State Road Fund.

NOTE—Maintenance of College Creek, Severn River and Conowingo Bridges aggregates \$25,526.90. (Per Exhibit "A," Schedule 6, Part 3.)

Exhibit "A," Schedule No. 3.

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

BOULEVARD, ETC.) FUND.

TO, TO DECEMBER 31, 1915.

CONSTRUCTION—Continued						Rights of Way and Damages	Total Construc- tion and Rights of Way and Damages	Adminis- tration, Legal and General Engineer- ing Ex- penses Ap- portioned	Total Expendi- tures and Overhead Expenses
Surfacing	Bridges and Culverts	Under- drains	Inspection and Super- vision	Miscella- neous	Total				
\$35,502.77	\$7,639.51	\$503.60	\$664.66	\$462.51	\$53,959.46	\$1,095.55	\$55,055.01	\$2,274.17	\$57,329.18
19,918.71	1,598.53		692.75	306.61	27,131.92	1,414.60	28,546.52	1,179.17	29,725.69
23,935.74	10,251.46	1,999.77	991.59	458.25	56,450.70	379.30	56,830.00	2,347.51	59,177.51
32,576.00	1,768.29	661.40	543.98	382.23	42,963.16	130.57	43,093.73	1,780.06	44,873.79
72,305.13	5,596.85	666.17	627.73	877.16	92,882.02	203.20	93,085.22	3,845.01	96,930.23
2,596.51	12.48			29.09	2,727.86		2,727.86	112.66	2,840.52
26,521.97	2,622.95		1,376.99	217.15	37,033.76	353.50	37,387.26	1,543.92	38,931.18
					8,062.01		8,062.01	333.02	8,395.03
31,046.22			993.70	52.25	32,631.95		32,631.95	1,348.31	33,980.26
			30.63		30.63		30.63	1.23	31.86
13,582.29	1,611.67		208.16	76.64	17,180.02		17,180.02	709.67	17,889.69
57,985.34	\$31,101.74	\$3,830.94	\$6,130.19	\$2,861.92	\$371,053.49	\$3,576.72	\$374,630.21	\$15,474.73	\$390,104.94
	\$18,276.05		\$580.59	\$6.18	\$18,862.82	\$100.00	\$18,962.82	\$778.84	\$19,741.66
	42,163.89		978.09	44.73	43,186.71		43,186.71	1,783.56	44,970.27
	56,107.17		992.04	32.87	57,132.08	81.84	57,213.92	2,362.59	59,576.51
\$227.37	3,208.99		291.40	134.17	15,315.62	10.00	15,325.62	632.87	15,958.49
*65,000.00					65,000.00		65,000.00		65,000.00
8,212.71	\$215,857.81	\$3,830.94	\$8,972.31	\$3,079.87	\$570,550.72	\$3,768.56	\$574,319.28	\$21,032.59	\$595,351.87

STATE ROAD

STATE ROAD NO. 1 (BALTIMORE AND

EXPENDITURES FROM JUNE

Counties and Baltimore City	Contract Number	Location of Road	Description	Miles of Road	CONSTRUCTION
					Preliminary Surveys and Plans
Baltimore City....	017 017 B	Columbia Avenue.....	36' Vit. Brick and Granite Block	0.31	\$7.2
		Columbia Avenue.....	36' Vit. Brick and Granite Block	0.11	2.5
		Totals.....		0.42	\$9.8
Baltimore County	05 05 Br 015AB ¹ 015AB ² *015C 015D	Patapsco River to B. & O. Overhead Crossing	18' Macadam.....	0.80	\$214.7
		Bridge over Patapsco River.....	2-100' Arches.....		
		B. & O. R. R. Crossing—Gwynn Falls.....	14' Macadam.....	0.45	114.7
		B. & O. R. R. Crossing—Morrell Park.....	18' Macadam.....	1.15	138.4
		County School—B. & O. Relocation.....	Grading (30').....		
		Herbert's Run—Winans.....	Grading and 2 15' Spans and Approaches to Culverts. (See cost of Bridge and Excavation.....	Cont.	015DA)
	015DA 015DA ¹ Y3	Less Refund of P. B. & W. R. R.—Part			
		Net cost to State Roads Commission..			
		Herbert's Run—Winans.....	16' Concrete (Surfacing).....	0.53	136.5
		B. & O. Undergrade Crossing—Halethorpe.	16' Conc. and Mac. (Surfacing) }	1.84	384.5
		Windsor Avenue—Lansdowne Road.....	16' Conc. $\frac{3}{4}$ " Bit. Covering.....		
		Totals.....		4.77	\$989.4
Howard County...	04 09 013 013A 013B 014A	Wesley Grove—Elkridge.....	Macadam.....	2.78	\$370.0
		Guilford Cross Roads—Waterloo.....	16' Concrete.....	2.33	56.0
		Elkridge Relocation (Patapsco River South)	16' Concrete $\frac{1}{2}$ " Top.....	0.89	112.0
		Through Elkridge.....	21' Concrete.....	0.47	56.0
		Through Elkridge.....	21' Concrete.....	0.23	31.0
		Patuxent River—Northward— $\frac{1}{2}$ Mile.....	12' Macadam.....	0.53	
		Miscellaneous Expenditures of County.			
		Totals.....		7.22	\$627.0
Prince George's County	03A 06B 06B ² 07 08 08B 012	Town of Hyattsville.....	Concrete Surface.....		
		Eastern Run—Eastern Run.....	16' Conc. Surf. $\frac{1}{2}$ " Bit. Top.....	0.36	\$36.0
		Eastern Run—Eastern Run.....	16' Conc. Surf. $\frac{1}{2}$ " Bit. Top.....	0.11	11.0
		Bridge over Eastern Run at Bladensburg..	4-34' Spans All Concrete Bridge.		
		Bladensburg Bridge.....	96' Concrete Bridge.....		
		Main Street, Laurel—Crow Run.....	18' Hassamite.....	0.63	63.0
		Section 8B—Berwyn to Paint Branch.....	16' Conc. and $\frac{1}{2}$ " Bit. Top and All-Steel Concrete Bridge.....	0.36	36.0
			14' Macadam.....	4.73	474.0
			16' Concrete.....	0.95	95.0
	018 36	Laurel—Beltsville.....			
		D. C. Line—Anacostia.....			
		Miscellaneous Expenditures of County.			
		Totals.....		7.14	\$716.0
		Totals.....		19.56	\$2,343.0

* Grading paid by B. & O. R. R.

NOTE—For Maintenance on State Road No. 1, see Exhibit "A," Schedule 6, Parts I and II.

Exhibit "A," Schedule No. 4.

REPORTS OF THE STATE ROADS COMMISSION

133

COMMISSION.

WASHINGTON BOULEVARD) FUND.

1910, TO DECEMBER 31, 1915.

CONSTRUCTION—Continued

Grading	Surfacing	Bridges and Culverts	Under-drains	Inspection and Supervision	Miscellaneous	Total	Rights of Way and Damages	Total Construction and Rights of Way and Damages	Administration, Legal and General Engineering Expenses Apportioned	Total Expenditures and Overhead Expenses
\$378.00 385.53	\$8,143.45 7,016.06	\$111.04	\$451.84	\$214.61 5.97	\$145.23 .99	\$9,340.39 7,522.17		\$9,340.39 7,522.17	\$339.84 273.70	\$9,680.23 7,795.87
\$763.53	\$15,159.51	\$111.04	\$451.84	\$220.58	\$146.22	\$16,862.56		\$16,862.56	\$613.54	\$17,476.10
\$1,273.75	\$7,684.06	\$822.21		\$273.30	\$44.93	\$10,312.96		\$10,312.96	\$375.12	\$10,688.08
318.81	7,731.23	8,194.95		682.69	239.66	9,117.30	\$676.50	9,793.80	356.42	10,150.22
1,713.85	14,183.58	1,707.87	\$30.47	522.11	18.49	8,957.45		8,957.45	325.98	9,283.43
				396.25	94.17	18,234.25	1.45	18,235.70	603.33	18,899.03
				464.62	27.46	492.08		492.08	17.97	510.05
9,650.30	5,058.17	6,184.95		758.57	81.27	\$21,733.26 9,915.14				
987.44	6,560.43	114.34		148.88		\$11,818.12	3,177.12	14,995.24	545.62	15,540.86
51.75	1,160.73					7,947.64	1.00	7,948.64	289.32	8,237.96
2,828.91	23,208.56	642.84	98.00	465.42	80.79	1,212.48 27,709.42		1,212.48	44.00	1,256.48
							1,116.75	28,826.17	1,049.09	29,875.26
\$16,824.81	\$65,586.76	\$17,888.72	\$128.47	\$3,711.84	\$586.77	\$95,801.70	\$4,972.82	\$100,774.52	\$3,666.85	\$104,441.37
\$1,733.98	\$1,670.59	\$828.87	\$238.91	\$30.62	\$469.40	\$5,342.38		\$5,342.38	\$194.33	\$5,536.71
7,644.87	5,285.19	846.48		185.04	5.05	6,378.20	\$4.10	6,382.30	232.28	6,614.58
1,346.54	11,555.61	3,262.99	23.50	815.23	120.19	23,635.28	8,358.45	31,993.73	1,164.10	33,157.83
544.73	4,675.18	86.49				6,164.65	297.34	6,461.99	235.18	6,697.17
	4,727.09			2.12	23.63	5,328.93		5,328.93	193.91	5,522.84
	1,276.38			43.15		1,319.53		1,319.53	48.12	1,367.65
		142.91		24.51		167.42		167.42	6.01	173.43
\$11,270.12	\$29,190.04	\$5,267.74	\$262.41	\$1,100.67	\$618.27	\$48,336.39	\$8,659.89	\$56,996.28	\$2,073.93	\$59,070.21
	\$241.30			\$23.75	\$10.17	\$275.22		\$275.22	\$10.01	\$285.23
\$447.75	5,045.76	\$300.38		387.65	344.98	6,562.65		6,562.65	238.80	6,801.45
1,814.08	1,281.94	713.75		263.76	17.58	4,102.23		4,102.23	149.26	4,251.49
		10,064.82		442.18	325.63	10,832.63		10,832.63	394.15	11,226.78
		10,780.84		317.53	103.45	11,201.82		11,201.82	407.98	11,619.70
601.12	9,791.84	915.99		169.95	60.92	11,603.05	\$9.90 275.00	11,211.72 11,878.05	432.19	12,310.24
2,090.13	7,775.79	6,325.92	\$82.95	616.65	128.48	17,056.05	126.40	17,182.45	625.22	17,807.67
16,700.76	28,581.98	14,427.14	1,197.42	700.19	392.38	62,474.81	1,250.53	63,725.34	2,318.77	66,044.11
3,645.87	10,626.46	681.45		272.66	26.40	15,348.19	48.05	15,396.24	560.19	15,956.43
	4.05			120.02	548.15	672.22		672.22	24.52	696.74
\$25,299.71	\$63,349.12	\$44,210.29	\$1,280.37	\$3,314.34	\$1,958.14	\$140,128.87	\$1,709.88	\$141,838.75	\$5,161.09	\$146,999.84
\$4,158.17	\$173,285.43	\$67,477.79	\$2,123.09	\$8,347.43	\$3,309.40	\$301,129.52	\$15,342.59	\$316,472.11	\$11,515.41	\$327,987.52

STATE ROADS COMMISSION.
RECONSTRUCTION EXPENDITURES, STATE ROADS FUND, FROM MAY 19, 1908, TO DECEMBER 31, 1915

County	Contract Number	Location of Road	Miles of Road	Labor and Materials	Team Hire and Use of Equipment	Inspection and Supervision	Miscellaneous	Total Reconstruction Expenditures	Administration, Legal and General Engineering Expenses	Total Expenditures and Overhead Expenses
Allegheny.....		*National Turnpike.....		\$770.17	\$90.90	\$169.55	\$5.50	\$1,036.12	\$34.42	\$1,070.54
Anne Arundel....	0191	Brooklyn—Glenburnie....	5.32	\$10,610.50	\$2,373.52	\$915.58	\$337.57	\$14,237.17	\$472.88	\$14,710.05
Baltimore.....	0184 B-16	Belair Turnpike..... City Limits—Lyman Ave. (York Road)	5.13 1.33	\$1,558.08 51.73	\$731.08	\$398.35	\$17.92	\$2,705.43	\$89.84	\$2,795.27
Calvert.....	0033	Huntington Creek—Prince Frederick.....						51.73	1.73	53.46
Caroline.....	164B ²	†Dover Bridge (Rest Pier).....	4.26	\$763.55	\$1,519.50			\$2,283.05	\$75.84	\$2,358.89
Carroll.....		Meadow Branch Turnpike	1.94	\$357.58	\$1,175.88	\$150.00		\$1,683.46	\$55.92	\$1,739.38
Cecil.....	049A	Perryville—North East....	3.49	\$973.60	\$1,070.65	\$150.61	\$9.50	\$2,204.36	\$73.22	\$2,277.58
Frederick.....	0244 00241B F23	Old Monrovia Road..... *Lewiston Bridge..... †Bug Bridge (Repairs)..... Emmitsburg Turnpike.....	1.44 21.54	\$2,158.60 757.55 1,438.26 1,894.88	\$47.25 99.90	\$124.37 100.00 251.96	\$1.70 112.26 579.50	\$2,158.60 930.87 1,650.52 2,826.24	\$71.70 30.91 54.84 93.86	\$2,230.30 961.78 1,705.36 2,920.10
Garrett.....		*National Turnpike.....		\$5,819.33	\$861.72	\$1,530.67		\$8,211.72	\$272.74	\$8,484.46
Howard.....	0220	West Friendship—Sykesville..... Frederick Turnpike..... Baltimore and Washington Boulevard.....	4.62 20.20	\$2,109.42 7,143.54	\$1,803.83 2,081.80 452.82	\$214.18 1,984.65 56.96	\$8.90	\$4,127.43 11,218.89 2,253.40	\$137.09 372.68 74.82	\$4,264.52 11,591.57 2,328.22
Kent.....	0263	†Chester River Bridge.....		\$1,655.05		\$9.00	\$9.17	\$1,673.22	\$55.58	\$1,728.80
Montgomery.....	0230 0231 0232 0235	Rockville—Gaithersburg... Gaithersburg—Darnestown Rockville—Norbeck..... Germantown Road—Cedar Grove.....	4.39 6.37 4.21 3.31	\$64.92 5,471.40 12.78 303.86	\$79.11 69.86 10.59 593.17	..... ..... ..... .....	..... ..... ..... .....	..... \$144.03 5,669.81 23.37 897.03	..... \$4.79 188.31 78 29.79	\$148.82 5,858.12 24.15 926.82

Prince George's,...	0130	Meadows—Upper Marl-	5.76	\$191.60	\$116.95	.....	.....	\$308.55	\$10.27	\$318.82
	0138	Marlboro Road,	1.31	1,593.05	1,786.86	.....	.....	3,565.35	118.43	3,683.78
		Baltimore and Washington	7.14	6,257.93	2,692.10	.....	.....	9,331.72	309.94	9,641.66
		Boulevard,								
Queen Anne's,...	0263	†Chester River Bridge	.....	\$1,653.04	.....	.....	\$9.16	\$1,673.20	\$53.59	\$1,728.79
Talbot,	164B ²	†Dover Bridge (Rest Pier),	.....	\$421.61	\$2.60	.....	\$47.63	\$528.88	\$17.55	\$546.43
Washington,		Boonsboro—Hagerstown	6.28	\$3,020.76	\$212.70	.....	\$15.71	\$3,699.92	\$122.91	\$3,822.83
	0217	Turnpike,	2.01	1,484.19	494.60	.....	111.24	2,469.35	\$2.03	2,551.38
		National Turnpike,								
Wicomico,	081C	State Road—Mardella	0.37	.....	.....	.....	.....	\$15.45	.51	\$15.96
	082B	Springs	.....	.....	.....	.....	.....	.....	.....	.....
		Fruitland towards Salis-	0.87	\$3,187.78	\$645.75	.....	\$63.34	4,253.18	\$141.24	4,394.42
		bury,								
Worcester,	060	Berlin—Snow Hill,	14.27	\$493.78	.....	.....	.....	\$495.78	\$16.47	\$512.25
		Totals,	129.92	\$64,389.83	\$19,015.73	\$7,943.85	\$1,505.28	\$92,856.69	\$3,084.26	\$95,940.95

* Rebuilding Arches.

† Bridge Repairs.

Exhibit "A," Schedule No. 3.

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON ALL STATE

County	Contract Number	Location of Road	Description	Miles of Road
Allegheny.....	0140 & A	Frostburg—Eckhart Mines.....	Macadam....	1.00
	0140 & B & C	Garrett County Line—Eckhart Mines.....	Macadam....	1.25
	0141	Nave's Farm Road—Six-Mile House.....	Macadam....	3.34
	0142	Standard Oil Warehouse—Railroad Crossing....	Macadam....	1.25
	0143	Six-Mile House—Allegheny Grove.....	Chert.....	1.02
	0144	Garrett County Line—Frostburg.....	Macadam....	0.64
	0145A B C	Six-Mile House—Polish Mountain.....	Macadam....	7.95
	0146 & B	Eckhart Mines—Six-Mile House.....	Macadam....	2.58
	0147	Gilpin—Green Ridge.....	Macadam....	7.05
	0148	Allegheny Grove—McKenzie's Store.....	Chert.....	2.84
	0149	Flintstone—Washington County Line.....	Macadam....	7.81
	A-11	Near Cumberland—Nave's Farm.....	Macadam....	1.90
	A-12	McKenzie's Store—C. & W. & E. R. R. Crossing	Concrete....	3.44
		National Turnpike.....	Macadam....	6.04
Anne Arundel.....	0190	Owings—Nutwell Road.....	Macadam....	4.81
	0191	Brooklyn—Glenburnie.....	Water bound and Tarred Macadam....	5.32
	0192	Nutwell Road—Mt. Zion.....	Macadam....	5.19
	0194	First Street—Brooklyn.....	Vitrified Brick	0.31
	0270	Annapolis Boulevard.....	Pitched Mac- adam....	3.05
	0271 A	Annapolis Boulevard.....	Macadam....	1.84
	0271 C	Annapolis Boulevard.....	Macadam....	2.65
	0272	Annapolis Boulevard.....	Macadam....	3.07
	0273	Annapolis Boulevard.....	Macadam....	5.28
	AA-5	Mt. Zion—Birdsville.....	Gravel.....	4.47
	AA-6	Birdsville—South River.....	Gravel.....	4.53
	AA-7	Annapolis—South River.....	Concrete....	4.13
	AB-6	Annapolis Boulevard.....	Concrete....	3.76
Baltimore.....	0180	Falls Road.....	Vitrified Brick and Pitched Macadam....	1.13
	0180 A	Falls Road.....	Vitrified Brick and Pitched Macadam....	4.45
	0181	Westport Road.....	Vitrified Brick and Tarred Macadam....	1.29
	0182	Philadelphia Road.....	Tarred Mac- adam....	1.95
	0183	Harford Road.....	Tarred Mac- adam....	2.90
	0186 & B	Belair Road.....	Vitrified Brick and Tarred Macadam....	2.95
	0188	Liberty Road.....	Tarred Mac- adam....	0.98
	0189	Park Heights Avenue.....	Macadam....	6.24
	B-6	Kingsville—Harford Co. Line (Belair Road)...	Macadam....	2.14
	B-8	Moore's Run—Perry Hall (Belair Road).....	Bit. Concrete	6.04
	B-9 & A	Belair Road.....	Macadam....	2.50
	B-12	Frederick Road.....	Concrete....	0.40
	B-13	Frederick Road.....	Macadam....	2.48
	B-14	Frederick Turnpike.....	Macadam....	3.40
	B-15	Bucks Lane—Old Court Road (Liberty Road)...	Macadam....	4.35
	B-18	English Consul Estate—Patapsco River.....	Concrete....	1.14
	B-19	York Road.....	Bit. Concrete	0.49
	B-20	York Road.....	Macadam....	4.56
	B-21	York Road.....	Macadam....	5.83
	B-22	Glencoe—Hereford.....	Macadam....	1.04
	B-16 & 17	York Road.....	Bit. Concrete	3.94
		Belair Turnpike.....	Old Roadway.	5.13
		Frederick Turnpike.....	Old Roadway.	6.32
		Reisterstown Turnpike.....	Old Roadway.	15.18
		*Baltimore and Washington Boulevard.....	Macadam and Concrete....	4.87

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

FUND.

ROADS FROM MAY 19, 1908, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings, Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Roads
\$1,171.15	\$2,606.94	\$443.15	\$180.07	\$84.74	\$4,486.05	\$149.23	\$4,635.28
1,486.00	3,435.44	518.60	436.01	366.30	6,242.35	207.66	6,450.01
1,950.85	2,811.84	1,715.12	506.95	129.94	7,114.70	236.71	7,351.41
1,763.11	5,640.16	903.44	573.47	183.33	9,063.51	301.67	9,365.18
255.31	18.65	249.90	.....	23.00	546.86	18.20	565.06
33.86	695.52	37.52	49.57	6.27	822.74	27.45	850.19
2,197.61	6,089.37	2,719.77	798.19	170.06	11,975.00	398.43	12,373.43
1,219.27	3,279.90	638.83	340.61	42.51	5,521.12	183.67	5,704.79
1,317.98	454.05	586.14	140.49	8.85	2,507.51	83.43	2,590.94
12.25	2.25	18.00	.....	.....	32.50	1.07	33.57
138.99	658.42	25.60	.....	6.90	829.91	27.61	857.52
59.13	90.69	1.50	49.12	18.23	218.67	7.27	225.94
246.73	48.83	68.93	7.35	21.49	393.33	13.07	406.40
1,787.68	554.14	1,071.28	239.07	.20	3,652.37	121.49	3,773.86
\$2,235.65	\$70.98	\$1,547.42	\$69.38	\$33.20	\$3,956.63	\$131.41	\$4,088.04
7,495.42	8,137.94	4,625.66	608.86	326.87	21,194.75	704.04	21,898.79
1,785.65	75.80	2,497.95	51.01	32.15	4,442.56	147.54	4,590.10
14.60	22.50	.60	.....	.....	37.70	1.24	38.94
590.11	1,412.83	465.85	28.51	253.83	2,751.13	91.40	2,842.53
549.94	1,010.38	361.07	67.29	10.94	1,999.62	66.42	2,066.04
1,784.89	2,130.08	754.35	101.57	107.27	4,878.16	162.01	5,040.17
4,465.82	2,764.07	2,327.65	229.96	60.27	9,847.77	327.12	10,174.89
4,083.75	2,951.22	1,090.89	265.64	485.94	8,877.44	294.85	9,172.29
713.10	13.25	803.39	30.31	15.35	1,575.40	52.32	1,627.72
1,304.32	13.25	989.80	2.25	29.24	2,338.86	77.67	2,416.53
117.54	9.48	88.90	27.10	.....	243.02	8.05	251.07
17.00	.....	.....	.....	.....	17.00	.56	17.56
\$3,081.64	\$1,510.54	\$1,102.31	\$428.06	\$226.62	\$6,349.17	\$210.87	\$6,560.04
5,623.61	6,640.01	2,649.89	620.80	208.79	15,743.10	522.88	16,265.98
1,745.62	1,089.00	514.83	268.78	68.50	3,686.73	122.48	3,809.21
6,312.37	8,330.02	2,529.27	1,114.80	364.22	18,650.68	619.50	19,270.18
6,443.61	5,187.01	2,240.70	488.84	479.81	14,839.97	492.93	15,332.90
6,684.63	7,751.96	3,802.56	1,219.97	649.69	20,108.81	667.89	20,776.70
1,011.69	1,404.76	377.52	98.28	34.36	2,926.61	97.22	3,023.83
9,834.81	15,392.63	5,497.21	1,147.68	408.15	32,280.48	1,072.16	33,352.64
650.13	1,235.20	170.50	206.34	84.61	2,346.78	77.96	2,424.74
4,504.24	518.92	2,387.77	157.64	38.41	7,606.98	252.66	7,859.64
1,646.06	1,857.74	623.07	407.73	209.94	4,744.54	157.62	4,902.16
159.82	30.02	48.45	12.45	23.25	273.99	9.11	283.10
2,066.25	3,690.46	1,422.36	365.97	105.83	7,650.87	254.11	7,904.98
1,186.65	1,676.48	542.25	166.80	65.97	3,638.15	120.85	3,759.00
132.51	587.09	79.01	43.79	10.83	853.23	28.32	881.55
485.98	210.09	157.26	111.89	8.00	973.22	32.30	1,005.52
300.90	457.70	129.92	68.66	6.29	963.47	32.03	995.50
959.80	1,839.02	190.77	116.76	50.72	3,157.07	104.86	3,261.93
1,525.61	2,340.58	319.47	211.09	61.75	4,458.50	148.07	4,606.57
108.52	8.40	.....	49.49	5.65	172.06	5.73	177.79
2,446.77	2,383.48	712.45	491.78	129.60	6,164.08	204.75	6,368.83
296.08	450.58	79.55	90.44	3.95	920.60	30.55	951.15
1,313.18	440.72	237.44	93.12	11.55	2,096.01	69.62	2,165.63
30.14	.....	4.80	3.50	19.90	58.34	1.91	60.25
1,445.37	989.30	599.62	442.98	116.84	3,594.11	119.37	3,713.48

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON ALL STATE

County	Contract Number	Location of Road	Description	Miles of Road
Calvert.....	030	Owings—Hunting Creek.....	Local Gravel..	10.44
	031			
	032			
	033			
	034	Hunting Creek—Prince Frederick.....	Local Gravel..	4.26
	C-7 (B)	Prince Frederick—Port Republic.....	Local Gravel..	4.51
		Solomon's Island (Road).....	14' Shell Macadam.....	1.00
	C-8	Frazier—Johnson.....	Local Gravel..	3.56
	C-9	Port Republic—Mutual Road.....	Local Gravel..	2.03
	C-10	Mutual Road—Lusby.....	Local Gravel..	6.00
	C-11	Frazier—Lusby.....	Local Gravel..	4.30
Caroline.....	050	Pasapee Landing—Watts Creek.....	Macadam....	4.40
	051			
	052			
	053			
	054	Federalsburg—Dorchester County Line.....	Macadam....	1.12
	055 & A	Watts Creek—Two Johns.....	Macadam....	3.21
	057	Lewis Trice Road—Federalsburg.....	Macadam....	2.66
	Co-9	Greensboro—Pasapee Landing.....	Macadam....	4.07
	Co 12 & 14	Tanyard—Bethlehem.....	Macadam....	3.18
	Co-13	Two Johns—Agner.....	Macadam....	6.44
	Co-15	Dover Bridge—Near Preston.....	Concrete....	2.97
	Co-16	Denton—Federalsburg.....	Concrete....	1.53
Carroll.....	0200	Queen Anne's County Line—Goldsboro.....	Concrete....	4.89
	0201	Goldsboro—Greensboro.....	Macadam....	3.86
	0202	Sykesville—Eldersburg.....	Macadam....	1.57
	0203 A & B	Westminster—Cranberry Station.....	Macadam....	1.25
		Eldersburg—Gamber.....	Macadam....	4.59
	0204	Gamber—Fenby.....	Macadam....	5.30
		Fountain Valley—Frizzleburg.....	Macadam and Concrete.....	1.38
	0206	Nicodemus Road.....	Macadam....	4.73
	0207	Cranberry's Station—Myer's Entrance.....	Macadam....	1.15
	0208 A	Sherman's Lane—Manchester.....	Macadam....	1.51
	0209	Taneytown—Frizzleburg.....	Concrete....	1.72
	0260	Ridgeville—Damascus.....	Macadam....	2.33
	Cl-10	Ridgeville—Howard County Line.....	Macadam....	1.59
	Cl-11	Copperville Road—Frizzleburg.....	Concrete....	5.47
Cecil.....		Frederick Turnpike.....	Old Roadway..	1.59
		Fenby and Meadow Branch Turnpike.....	Old Roadway..	4.40
	040	Oakwood—Octararo.....	Macadam....	3.10
	041	Rising Sun—Near Mt. Sylmar Road.....	Macadam....	3.25
	043	Elkton—Singerly.....	Macadam....	2.36
	044	Elkton—Chesapeake City.....	Macadam and Concrete.....	4.59
	045	North Branch (Back Creek)—Chesapeake City..	Macadam....	0.88
	047	Conowingo—Oakwood.....	Concrete....	1.67
	049 A	Perryville—Charlestown.....	Concrete....	3.49
	049 B & C	North East—Elkton.....	Gravel and Concrete.....	4.74
			Concrete....	5.53
	049 D	Charlestown Road—North East.....	Macadam....	5.19
	Ce-14	Chesapeake City—Bohemia Road.....	Concrete....	1.14
	Ce-14 A.	Through Chesapeake City.....	Concrete....	6.01
	Ce-15	Bohemia River—Fredericktown.....	Concrete....	0.96
	Ce-15 A	Through Cecilton.....	Concrete....	3.15
	Ce-16	Barksdale and Newark Roads—Delaware Line..	Macadam....	0.47
	Ce-17	Through North East.....	Concrete....	
Charles.....	0150	White Plains—La Plata.....	Gravel.....	4.64
	0151	Prince George's County Line—White Plains.....	Gravel.....	6.27
	0152	Waldorf—Beantown.....	Gravel.....	3.00
	0153	Beantown—Bryantown.....	Gravel.....	3.84
	0154 A & B	Tompkinsville—Rock Point.....	Gravel and Concrete.....	9.81
			Concrete....	2.11
	Ch-6	Bel Alton—Lothair.....	Gravel.....	3.19
	Ch-7	Glymont—Mason's Springs.....	Gravel.....	4.40
	Ch-8.....	La Plata—Bel Alton.....	Gravel.....	4.92
	Ch-10	Bryantown Road.....	Gravel.....	5.66
	Ch-11	La Plata—Ripley.....	Gravel.....	

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

FUND.

ROADS FROM MAY 19, 1908, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings, Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Roads
\$8,007.06	\$502.01	\$9,463.34	\$126.03	\$49.59	\$18,148.03	\$605.11	\$18,753.14
1,709.14	42.59	1,748.29	13.60	83.27	3,596.89	119.93	3,716.82
1,031.60	40.00	1,330.56	17.69	384.30	2,804.15	93.51	2,897.66
120.25	55.36	37.80	3.64	9.05	226.10	7.53	233.63
272.70	6.12	403.28	16.98	.....	699.08	23.31	722.39
1,172.75	82.45	1,702.37	9.89	.....	2,967.46	98.95	3,066.41
608.59	38.05	781.06	27.87	14.62	1,470.19	49.02	1,519.21
432.99	116.15	375.00	17.71	.....	941.85	31.41	973.26
\$2,962.43	\$5,985.23	\$1,722.66	\$326.88	\$105.07	\$11,102.27	\$368.74	\$11,471.01
652.26	1,158.68	267.25	61.31	27.90	2,167.40	71.98	2,239.38
1,542.38	4,213.48	993.77	148.38	43.75	6,911.76	230.55	7,172.31
2,556.94	3,065.39	838.85	155.57	179.06	6,795.81	225.72	7,021.53
1,997.10	4,626.18	1,047.50	103.66	99.43	7,873.87	261.57	8,135.44
583.92	2,312.81	271.60	15.56	30.73	3,214.62	106.76	3,321.38
119.56	433.10	66.29	2.65	12.59	634.19	21.05	655.24
440.28	45.66	211.78	.....	16.09	713.81	23.70	737.51
89.58	.....	41.04	.....	17.06	150.68	5.00	155.68
192.69	.....	130.37	.....	40	323.46	10.74	334.20
185.75	44.00	146.26	26.34	.....	402.35	13.37	415.72
\$2,064.57	\$3,140.55	\$1,470.79	\$160.29	\$123.53	\$6,959.73	\$231.17	\$7,190.90
673.73	1,253.48	166.17	74.39	23.09	2,190.86	72.76	2,263.62
1,369.81	1,980.59	1,447.56	149.96	57.36	8,005.28	265.90	8,271.18
1,634.76	5,671.90	3,433.78	358.59	234.44	11,333.47	376.46	11,709.93
38.42	211.66	45.64	15.11	14.60	325.43	10.81	336.24
412.98	1,391.15	601.34	220.20	51.07	2,676.74	88.90	2,765.64
73.68	500.84	37.09	12.99	17.62	642.22	21.33	663.55
144.63	594.19	193.69	33.79	30.88	997.18	33.12	1,030.30
138.21	53.52	34.70	.....	20.22	246.65	8.19	254.84
671.51	959.03	420.51	132.38	32.10	2,215.53	73.58	2,289.11
195.50	168.93	57.63	19.99	12.02	454.07	15.08	469.15
188.13	32.66	80.50	.....	14.19	315.48	10.48	325.96
218.00	51.33	22.18	24.25	.....	315.76	10.48	326.24
1,655.70	3,977.45	312.31	228.84	19.44	6,193.74	205.72	6,399.46
\$2,129.95	\$3,966.45	\$1,317.19	\$273.71	\$78.44	\$7,765.74	\$257.92	\$8,023.66
2,191.65	3,637.88	907.13	130.94	78.65	6,946.25	230.65	7,176.90
1,366.31	2,592.76	977.00	167.55	63.06	5,166.68	171.54	5,338.22
1,093.56	2,837.38	1,190.17	88.36	23.92	5,233.39	173.83	5,407.22
1,084.64	1,021.86	438.89	66.53	71.88	2,683.80	89.08	2,772.88
340.93	.....	93.52	29.23	13.20	476.88	15.79	492.67
408.79	112.70	276.71	6.45	33.21	837.86	27.80	865.66
2,792.99	1,549.21	1,704.26	98.26	151.89	6,296.61	209.20	6,505.81
431.62	840.25	396.36	80.88	1.40	1,750.51	58.17	1,808.68
152.52	.....	131.56	.....	5.39	292.47	9.72	302.19
73.88	.....	28.52	.....	.....	102.40	3.37	105.77
88.36	.....	74.24	.....	5.40	168.00	5.53	173.53
69.56	.....	51.73	.....	.....	121.29	4.05	125.34
605.32	1,126.99	610.03	34.84	46.94	2,424.12	80.57	2,504.69
189.26	.....	176.11	6.36	1.40	373.13	12.42	385.55
\$3,685.51	\$5,422.59	\$1,674.66	\$338.94	\$129.22	\$11,250.92	\$373.66	\$11,624.58
3,352.37	6,027.30	1,578.28	284.50	84.95	11,327.40	376.19	11,703.59
1,788.74	393.83	1,608.26	85.53	70.33	3,946.69	131.07	4,077.76
2,319.46	381.53	2,125.01	144.60	67.09	5,037.69	167.29	5,204.98
2,261.15	214.83	667.11	205.42	90.61	3,439.12	114.21	3,553.33
36.00	.....	25.75	.....	.....	61.75	2.05	63.80
565.72	5.50	317.00	23.29	20.10	931.61	30.94	962.55
109.72	.....	28.42	12.45	.....	150.59	5.00	155.59
526.09	.....	285.14	24.78	1.75	837.76	27.82	865.58
.....	.....	.....	50	.....	50	01	51

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON ALL STATE

County	Contract Number	Location of Road	Description	Miles of Road
Dorchester.....	070 A & B	Hurlock—Federalsburg.....	Macadam....	5.33
	071	Hurlock—East New Market.....	Macadam....	5.80
	072 A	Mt. Holly—East New Market.....	Macadam....	5.96
	073	Shiloh Church—Brookview.....	Macadam....	4.40
	074	Brookview—Sharptown.....	Concrete....	5.57
	075	Cambridge—Mt. Holly.....	Concrete....	3.41
	078	Vienna Road—Vienna.....	Macadam....	0.84
	D-7 A & B	Linchester—E. New Market.....	Concrete, Bit. Top.....	4.80
	D-8	Cambridge—Church Creek.....	Macadam....	6.04
Frederick.....	0240	New Market—New London.....	Macadam....	2.99
	0241	New Market—Kempton Road.....	Macadam....	1.34
	0242	Jefferson—Petersburg.....	Macadam....	4.46
	0243	Petersburg—Knoxville.....	Macadam....	2.67
	0244	Old Monrovia Road.....	Macadam....	1.44
	0245	Jefferson Turnpike.....	Macadam....	0.96
	0246	Through Middletown.....	Macadam....	1.10
	0247	Middletown—Frederick.....	Macadam....	6.61
	0248	Monocacy—New Market.....	Macadam....	5.00
	0260	Ridgeville—Near Montgomery County Line.....	Macadam....	0.77
	00240	Frederick—Jefferson Turnpike.....	Macadam....	6.93
	F-12	New Market—Plain No. 4.....	Macadam....	3.20
	F-13	Plain No. 4—Carroll County Line.....	Macadam....	2.36
	F-14	Frederick—Monocacy Bridge.....	Macadam....	1.97
	F-15	Middletown—Washington County Line.....	Macadam....	4.55
	F-16	Near Harmony Grove—North.....	Macadam....	4.50
	F-17	Lewistown—Thurmont.....	Macadam....	5.66
	F-20	Through New Market.....	Macadam....	0.66
	F-22	Emmitsburg—Pennsylvania State Line.....	Macadam....	1.23
		Emmitsburg Turnpike.....	Old Roadway.....	21.54
		Frederick Turnpike.....	Old Roadway.....	27.40
Garrett.....	0160	Sutton—Allegheny County Line.....	Macadam....	3.61
	0161	Oakland—Thayersville.....	Macadam....	5.56
	0162 & B	Thayersville—McHenry.....	Macadam....	6.67
	0163	McHenry—Accident.....	Macadam....	4.39
	0164	End of Cont. 0160—Willow Run.....	Macadam....	4.83
	G-6	Hoyes—Accident.....	Concrete....	2.73
	G-8	Through Grantsville.....	Macadam....	0.84
	G-9	Piney Grove—Grantsville.....	Macadam....	3.03
	G-10	Grantsville—Keyser.....	Macadam....	5.25
	G-11	Keyser—Pennsylvania State Line.....	Macadam....	3.37
	G-12	Accident—Keyser.....	Macadam....	6.95
		National Turnpike.....	Old Roadway.....	
Harford.....	0170	Churchville—Aberdeen.....	Macadam....	4.43
	0171	St. Ignatius' Church—Grafton Shops.....	Macadam....	2.93
	0172	Kalmia—Deer Creek.....	Macadam....	2.22
	0173	Little Gunpowder—Benson.....	Macadam....	2.85
	0174	Dublin—Susquehanna.....	Macadam....	4.24
	0175	Hickory Road.....	Macadam....	6.12
	0176	Poole—Dublin.....	Macadam....	1.42
	0178	Benson—Belair.....	Macadam....	2.35
	H-10	Grafton Shop—Coopstown.....	Macadam....	2.58
	H-11	Belair—Churchville.....	Macadam....	5.36
	H-13	Deer Creek—Poole.....	Macadam....	0.91
	H-14	End of Cont. H-10—Jarrettsville.....	Macadam....	2.65
	H-16	Aberdeen—Havre de Grace.....	Macadam....	3.65
Howard.....	0220	West Friendship—Sykesville.....	Macadam....	4.62
	0222	Doughoregan—Ellicott City.....	Macadam....	5.18
	0260	Ridgeville—Near Montgomery County Line.....	Macadam....	1.51
	Ho-4	Lisbon—Near West Friendship.....	Macadam....	4.77
	Ho-5	Doughoregan—Cooksville.....	Macadam....	5.42
	Ho-6	Lisbon—South Branch Patapsco River.....	Macadam....	3.97
	Ho-7	Ellicott City—Elioak.....	Macadam....	3.37
		Frederick Turnpike.....	Old Roadway.....	19.25
		*Baltimore and Washington Boulevard.....	Macadam....	10.90

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

FUND.

ROADS FROM MAY 19, 1908, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings, Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Roads
\$1,891.47	\$4,250.59	\$928.23	\$142.68	\$82.93	\$7,295.90	\$242.30	\$7,538.20
2,202.53	4,545.59	926.08	177.17	106.41	7,957.78	264.28	8,222.06
2,746.93	5,560.54	1,428.78	179.27	54.54	9,970.06	331.11	10,301.17
1,288.85	4,279.47	544.23	128.73	41.23	6,282.51	208.64	6,491.15
401.17	141.22	179.09	37.23	6.40	768.11	25.51	793.62
708.04	1,835.75	512.13	64.19	23.56	3,143.67	104.40	3,248.07
446.18	1,973.05	285.94	121.66	49.37	2,876.20	95.51	2,971.71
198.99	199.90	75.80	46.79	2.50	523.98	16.41	540.39
232.74	.....	53.53	67.64	5.45	359.36	12.93	372.29
\$697.40	\$2,533.90	\$344.49	\$91.56	\$30.65	\$3,698.00	\$122.82	\$3,820.82
1,159.88	1,738.22	304.95	126.36	11.87	3,341.28	111.00	3,452.28
1,489.28	3,478.80	667.71	107.03	40.29	5,783.11	192.07	5,975.18
1,234.47	1,990.54	311.22	116.65	35.40	3,688.28	122.50	3,810.78
1,819.77	2,861.74	1,072.33	288.49	117.78	6,160.11	204.60	6,364.71
1,001.15	1,165.70	47.45	19.62	84.14	2,318.06	76.98	2,395.04
28.22	433.62	20.29	17.61	3.94	503.68	16.73	520.41
997.28	4,903.98	947.78	302.94	85.17	7,237.15	240.38	7,477.53
1,198.15	3,104.73	872.65	143.34	32.57	5,351.44	177.74	5,529.18
383.75	663.99	120.53	25.80	23.30	1,217.37	40.43	1,257.80
120.75	1,430.85	248.73	114.03	55.41	1,969.77	65.42	2,035.19
904.74	1,085.03	366.24	87.27	12.57	2,455.85	81.57	2,537.42
224.45	540.48	143.19	43.99	8.87	960.98	31.91	992.89
337.41	647.41	128.00	42.98	13.34	1,169.14	38.82	1,207.96
252.61	98.35	126.25	24.99	12.55	514.75	17.10	531.85
26.90	224.08	46.30	35.21	7.75	340.24	11.31	351.55
381.26	607.99	79.40	74.80	21.00	1,164.45	38.69	1,203.14
1.58	172.91	9.43	19.69	2.40	206.07	6.85	212.86
.....	74.47	.....	6.22	.....	80.69	2.67	83.36
4,001.95	5,666.76	1,026.98	593.06	167.81	11,456.56	380.55	11,837.11
3,585.89	947.62	363.36	264.48	37.26	5,198.61	172.65	5,371.26
\$2,011.32	\$5,412.02	\$1,111.03	\$461.25	\$179.42	\$9,175.04	\$304.65	\$9,479.69
2,204.95	9,373.96	1,699.37	509.58	80.26	13,868.12	460.48	14,328.60
1,125.52	3,971.39	521.39	281.46	43.83	5,943.59	197.35	6,140.94
346.33	630.71	121.00	185.90	53.99	1,337.93	44.43	1,382.36
54.16	296.89	.....	9.68	16.89	377.62	12.53	390.15
.....	.....	.....	61.07	6.00	67.07	2.23	69.30
.....	79.41	11.35	22.15	.....	112.91	3.76	116.67
458.20	1,581.73	82.65	92.49	30.85	2,245.92	74.58	2,320.50
353.75	346.94	108.39	60.41	59.95	929.44	30.86	960.30
61.13	254.90	86.59	25.74	31.41	459.77	15.26	475.03
10.67	123.06	.....	.....	9.65	143.38	4.75	148.13
10.50	91.84	.....	.....	.....	102.34	3.40	105.74
\$2,087.30	\$4,887.32	\$1,881.98	\$466.70	\$96.51	\$9,419.81	\$312.86	\$9,732.67
1,781.87	4,430.60	1,040.24	284.55	96.85	7,634.11	253.55	7,887.66
2,312.64	2,946.01	1,015.58	157.50	110.34	6,542.07	217.28	6,759.35
1,388.88	2,703.08	841.87	189.62	37.58	5,161.03	171.41	5,332.44
1,310.43	4,140.86	540.50	125.98	102.64	6,220.41	206.60	6,427.01
2,219.41	8,220.00	1,374.38	532.69	140.03	12,486.51	414.72	12,901.23
781.00	1,637.13	648.29	43.95	15.54	3,125.91	103.83	3,229.74
1,884.82	3,265.89	1,094.51	168.81	68.08	6,482.11	215.29	6,697.40
444.70	264.09	242.73	81.09	31.53	1,064.14	35.37	1,099.51
2,438.84	5,023.81	1,817.97	396.68	270.66	9,947.96	330.40	10,278.36
838.09	824.70	581.60	54.02	17.47	2,315.88	76.86	2,392.74
826.65	842.00	573.79	95.84	56.51	2,394.29	79.52	2,473.81
1,667.58	1,979.21	452.00	129.47	88.95	4,317.21	143.39	4,460.60
\$3,525.89	\$6,005.39	\$1,984.46	\$430.91	\$313.33	\$12,259.98	\$407.25	\$12,667.23
1,264.91	4,900.66	1,081.82	200.00	95.55	7,542.94	250.57	7,793.51
548.13	1,524.64	297.87	71.73	15.67	2,458.04	81.64	2,539.68
1,381.43	1,588.42	1,768.60	74.14	176.32	4,988.91	165.73	5,154.64
703.52	1,441.78	695.05	94.45	2.82	2,937.62	97.58	3,035.20
479.63	1,073.37	283.67	61.41	7.47	1,905.55	63.30	1,968.85
850.40	1,470.33	495.91	215.76	45.03	3,077.43	102.23	3,179.66
4,306.80	240.33	888.25	40.00	16.64	5,492.02	182.44	5,674.46
9,234.66	8,388.11	6,567.48	1,161.70	357.51	25,709.46	853.97	26,563.43

STATE ROADS

STATE ROAD

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON ALL STATE

County	Contract Number	Location of Road	Description	Miles of Road
Kent.....	0120	Chestertown—Big Woods Road.....	Macadam.....	3.26
	0121	Big Woods Road—Kennedyville.....	Macadam.....	4.58
	0122	Kennedyville—Locust Grove.....	Macadam.....	1.94
	0123	Chestertown—Fairlee.....	Macadam.....	2.95
	0124 A & B	Locust Grove—Galena.....	Macadam.....	3.09
	K-7	MHI Creek—Georgetown.....	Macadam.....	3.11
	K-7 A	Through Galena.....	Concrete.....	0.73
Montgomery.....	0230	Rockville—Gaithersburg.....	Macadam.....	4.39
	0231	Darnestown—Gaithersburg.....	Macadam.....	6.37
	0232	Rockville—Norbeck.....	Macadam.....	4.21
	0233	Darnestown—Dawsonville.....	Macadam.....	2.97
	0234	Gaithersburg—Germantown.....	Concrete.....	4.02
	0235 & A	Germantown Road—Cedar Grove.....	Macadam.....	3.31
	0236	Germantown—Cedar Heights.....	Macadam.....	2.00
	0237	Claggettville—Howard County Line.....	Concrete.....	2.05
	M-9	Kings Valley—Claggettville.....	Concrete.....	3.65
	M-10	Norbeck—Sandy Springs.....	Old Roadway.....	1.25
	M-11	D. C. Line—Linden (Union Turnpike).....	Macadam.....	4.01
	M-12	Wheaton—Five Miles North.....	Macadam.....	5.00
	M-13	Near Norbeck—Olney.....	Macadam.....	2.00
	M-14	Through Gaithersburg.....	Macadam.....	1.20
	0260	Howard County Line.....	Macadam.....	0.05
Prince George's...	0130	Meadows—Upper Marlboro.....	Macadam.....	5.76
	0131	D. C. Line—Camp Springs.....	Gravel.....	6.12
	0132	D. C. Line—Upper Marlboro.....	Concrete.....	4.71
	0133	Camp Springs—T. B.....	Gravel.....	5.98
	0135	D. C. Line—Charles County Line.....	Concrete.....	3.59
	0138	Bennings—Marlboro.....	Macadam.....	1.31
	PG-8	D. C. Line—Seat Pleasant.....	Concrete.....	2.23
	PG-12	D. C. Line—Camp Springs.....	Amesite.....	4.77
	PG-13	Meadows—Camp Springs.....	Concrete.....	3.01
		* Baltimore and Washington Boulevard.....	Macadam.....	14.36
Queen Anne's.....	0100	Kent County Line—Ralph's Road.....	Macadam.....	3.01
	0101	Burrisville—Centreville.....	Macadam.....	3.04
	0102	Starkley Corner—Burrisville.....	Macadam.....	3.15
	0103	Ralph's Road—Church Hill.....	Macadam.....	3.48
	0104	Church Hill—Starkley Corner.....	Macadam.....	1.97
	0105	Centreville—Jackson.....	Macadam.....	2.49
	0107	Centreville—Wye Mills.....	Macadam.....	4.65
	Q-9	Church Hill—Roberts Station.....	Macadam.....	4.07
	Q-10	Roberts Station—County Line.....	Concrete.....	5.15
	Q-12	Through Church Hill.....	Bit. Concrete.....	0.66
St. Mary's.....	020	Mechanicsville—Chaptico Road.....	Macadam.....	5.34
	021	McIntosh—Leonardtown.....	Macadam.....	3.49
	022	Chaptico Road—McIntosh Run.....	Macadam.....	5.25
	023	Charles County Line—Mechanicsville.....	Concrete.....	5.84
	SM-6	Leonardtown—St. Mary's City.....	Gravel.....	5.83
	SM-8	St. Mary's City—Point Lookout.....	Gravel.....	6.26
	SM-9	Ridge—Confederate Monument.....	Gravel.....	3.07
	SM-10	Leonardtown—Great Mills.....	Gravel.....	9.81
Somerset.....	090	Princess Anne—Kings Creek.....	Macadam.....	2.91
	091	Kings Creek—Westover.....	Macadam.....	3.40
	092	Westover—Kingston.....	Macadam.....	4.31
	093 (S-4)	Carroll Corner—Marion.....	Macadam.....	5.32
	094	Allen—Princess Anne.....	Concrete.....	6.02
	095	Crisfield—Near Hopewell.....	Concrete.....	2.38

Exhibit "A," Schedule No. 6, Part I—(Continued).

REPORTS OF THE STATE ROADS COMMISSION

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COMMISSION.

FUND.

ROADS FROM MAY 19, 1908, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Roads
\$2,173.82	\$3,051.38	\$1,464.83	\$192.86	\$107.24	\$6,990.13	\$231.06	\$7,221.19
2,212.04	4,758.87	1,377.63	188.29	50.78	8,587.61	283.86	8,871.47
531.19	2,008.58	317.83	47.01	65.18	2,969.82	98.16	3,067.98
218.75	565.52	298.28	53.28	29.95	1,165.78	38.54	1,204.32
568.12	1,573.66	385.97	52.18	5.60	2,585.53	85.44	2,670.97
277.27		138.68	.50	46.01	462.46	15.29	477.75
29.73	23.52	11.98		1.43	66.66	2.22	68.88
\$2,885.66	\$5,681.61	\$1,495.95	\$359.58	\$146.49	\$10,569.29	\$351.00	\$10,920.29
2,282.62	7,647.92	2,383.32	331.39	136.60	12,781.85	424.76	13,206.61
3,416.98	2,860.18	1,830.93	242.98	255.01	8,606.08	285.81	8,891.89
201.69	242.20	282.72	126.36	32.89	885.86	29.30	915.16
426.15	89.40	191.63	287.96		995.14	33.09	1,028.23
1,592.29	3,193.39	1,501.28	284.58	115.42	6,686.96	222.26	6,909.22
185.05	1,104.76	425.66	63.58	36.55	1,815.60	60.26	1,875.86
623.56	151.04	118.35	12.12	23.45	928.52	30.79	959.31
355.50	16.40	31.05		19.86	422.81	13.99	436.80
78.24		17.10	5.68		101.02	3.29	104.31
889.10	1,323.45	264.88	278.66	55.65	2,811.74	93.35	2,905.09
331.32	853.91	327.83	166.59	21.17	1,700.82	56.47	1,757.29
66.75	133.59	142.23	62.73	2.70	408.00	13.50	421.50
49.20	118.58	23.30	40.81		231.89	7.74	239.63
297.40	277.03	36.62	8.12	7.43	626.60	20.74	647.34
\$3,451.25	\$4,695.06	\$2,081.37	\$361.92	\$115.08	\$10,704.68	\$355.63	\$11,060.31
6,281.20	7,472.14	4,400.32	622.45	245.44	19,021.55	631.76	19,653.31
278.55	6.70	157.33	11.80	19.76	474.14	15.64	489.78
4,312.86	6,583.95	2,942.67	326.27	103.43	14,269.18	474.08	14,743.26
490.88	15.27	597.62	19.77	2.47	1,126.01	37.36	1,163.37
754.00	1,613.18	1,097.18	216.77	47.60	3,728.73	123.75	3,852.48
669.93	7.62	282.35	14.29	15.07	989.26	32.86	1,022.12
71.79		27.60			99.39	3.18	102.57
			1.00		1.00	.27	1.27
9,341.25	10,336.14	6,584.36	2,246.72	861.14	29,369.61	975.46	30,345.07
\$1,506.64	\$4,238.70	\$1,155.89	\$169.85	\$55.47	\$7,126.55	\$236.64	\$7,363.19
1,842.14	3,020.43	916.51	136.21	59.89	5,975.18	198.44	6,173.62
1,291.81	3,355.22	902.28	129.72	82.30	5,761.33	191.38	5,952.71
1,826.84	2,666.14	1,513.41	93.69	86.01	6,216.09	206.47	6,422.56
659.51	2,062.32	378.42	43.11	21.81	3,165.17	105.12	3,270.29
632.48	2,576.44	330.19	67.44	50.06	3,656.61	121.42	3,778.03
581.52	2,191.82	491.07	220.47	47.97	3,532.85	117.28	3,650.13
193.97	265.42	209.12	39.85	41.77	750.13	24.94	775.07
125.16	48.48	88.51	.50	19.72	282.37	9.37	291.74
117.95		45.68	5.14	2.14	170.91	5.60	176.51
\$2,972.50	\$4,778.29	\$1,429.85	\$222.04	\$44.30	\$9,446.98	\$313.68	\$9,760.66
2,842.56	3,135.48	1,086.10	254.81	40.27	7,359.22	244.36	7,603.58
3,623.42	708.38	2,255.41	44.13	23.34	6,654.68	220.94	6,875.62
1,028.69	90.54	253.86	6.75	34.39	1,414.23	46.98	1,461.21
451.97	19.66	442.80	97.97	4.50	1,016.90	33.77	1,050.67
173.35	3.00	171.05	58.88		406.28	13.49	419.77
118.46	12.00	149.70	33.50		313.66	10.41	324.07
1,585.30	90.10	1,082.16	174.38	10.33	2,942.27	97.69	3,039.96
\$1,136.30	\$2,743.70	\$189.67	\$145.38	\$65.35	\$4,280.40	\$141.98	\$4,422.38
1,975.13	7,095.81	892.11	601.40	312.01	10,876.46	360.79	11,237.25
1,053.15	3,341.58	431.87	213.31	66.05	5,105.96	169.37	5,275.33
			20.23		20.23	.67	20.90
298.95	24.67	47.10	8.21		378.93	12.56	391.49
832.20	252.06	175.60	88.33	28.76	1,376.95	45.67	1,422.62

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON ALL STATE

County	Contract Number	Location of Road	Description	Miles of Road
Talbot.....	0110	Easton—Skipton Creek..... Easton—Wye Mills..... Easton—St. Michaels..... Near Easton—Dover Bridge..... Easton—Towards Trappe.....	Macadam and Concrete..... Concrete..... Old Roadway..... Macadam..... Concrete.....	7.96 2.94 2.50 3.13 3.48
	0111			
	0112			
	0113			
	0114 & B			
	T-8			
Washington.....	0210	Fairview Mountain—St. Paul's Church.....	Macadam.....	4.25
	0211	Clearspring—Licking Creek.....	Macadam.....	4.51
	0212	Licking Creek—Millstone.....	Macadam.....	4.14
	0213	Clearspring Road.....	Macadam.....	1.99
	0214	Tenoloway—Hancock.....	Macadam.....	1.95
	0215	Conococheague—Hagerstown.....	Macadam.....	6.14
	0217 A	Exline Road—Tonoloway.....	Macadam.....	2.01
	0217 B	Tonoloway—Harvey.....	Macadam.....	1.87
	0217 C & D	Harvey—Allegheny County Line.....	Macadam.....	3.63
	W-7 B	Millstone—Hancock.....	Macadam.....	3.49
	W-9	Boonsboro—Frederick County Line.....	Macadam.....	2.03
	0219	Hagerstown—Boonsboro.....	Macadam.....	6.29
	W-12	Through Boonsboro.....	Macadam.....	.76
	.....	Frederick Turnpike.....	Old Roadway.....	.....
Wicomico.....	080	Rockawalking Road—Mardella Springs.....	Macadam.....	5.76
	081	State Road (Mardella Springs).....	Macadam.....	7.61
	081 A	Mardella Springs—Riverton.....		
	081 B	Riverton—Sharptown.....		
	081 C	State Road—Mardella Springs.....		
	082 A & B	Salisbury—Fruitland Road.....	Bit Shell * Macadam.....	2.16
	083 A	Salisbury—Rockawalking Road.....	Macadam..... (Concrete Shoulders)	3.95
	083 B	Salisbury—Powell's Siding.....	Macadam..... (Concrete Shoulders)	1.69
	084	Fruitland Road—Allen.....	Macadam.....	4.83
	085 A	Salisbury—Parsonsborg.....	Concrete.....	4.33
	Wi-8	Pittsville—Worcester County Line.....	Concrete.....	8.36
Worcester.....	060 & B	Berlin—Snow Hill.....	Macadam.....	14.27
	061	Snow Hill—Pocomoke.....	Macadam.....	3.22
	062	Outens Entrance—Pocomoke.....	Macadam.....	2.89
	063	Snow Hill—Hardship Branch.....	Macadam.....	2.42
	Wo-5	St. Martin—Berlin.....	Concrete.....	3.96
	Wo-6 & A	Berlin—Ocean City.....	Concrete.....	6.82
	Wo-7	Wicomico County Line—St. Martin.....	Concrete.....	3.74
	Wo-8	Betheden Church—Hardship Branch.....	Concrete.....	3.00
		Total Cost of Maintenance, including Oiling on All State Roads from May 19, 1908, to December 31, 1915.....		1053.98

* See Exhibit "A," Schedule No. 6, Part II, on Page 146.

MAINTENANCE

Baltimore and Howard.....	B-14 A	Ellicott City Bridge.....		
Caroline.....	164 B ²	Dover Bridge.....		
Dorchester.....	0262 B	Approaches to Sharptown Bridge.....		
Kent.....	0263	Chestertown Bridge.....		
Queen Anne's.....	0263	Chestertown Bridge.....		
Talbot.....	164 B ²	Dover Bridge.....		
Wicomico.....	0262 B	Approaches to Sharptown Bridge.....		

Exhibit "A," Schedule No. 6, Part I—(Concluded).

REPORTS OF THE STATE ROADS COMMISSION

145

COMMISSION.

FUND.

ROADS FROM MAY 19, 1908, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings, Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Roads
\$3,886.94	\$7,737.22	\$1,501.88	\$287.49	\$197.62	\$13,611.15	\$452.02	\$14,063.17
186.29	60.61	65.31	1.00	30.87	344.08	11.42	355.50
753.19	1,868.25	414.93	30.00	23.78	3,150.77	1.79	3,152.56
89.71		45.79	71.60	42.80	140.17	104.63	244.80
				4.97		4.66	145.13
\$1,031.99	\$4,071.47	\$929.54	\$302.98	\$107.70	\$6,443.68	\$214.01	\$6,657.69
837.64	3,201.25	466.50	198.38	31.39	4,735.16	157.27	4,892.43
	21.73		30.44		52.17	1.73	53.90
1,215.46	1,619.87	1,339.51	314.10	138.54	4,627.48	153.70	4,781.18
379.21	2,109.30	194.13	46.54	50.50	2,779.68	92.33	2,872.01
1,195.15	4,628.21	1,042.21	300.11	129.21	7,294.89	242.31	7,537.20
574.02	1,586.54	229.69	90.58	9.23	2,490.06	82.70	2,572.76
124.63	1,207.02	190.00	18.45	12.64	1,552.74	51.57	1,604.31
436.29	848.67	722.28	64.05	28.38	2,099.67	69.73	2,169.40
705.33	215.15	229.24	276.73	6.39	1,432.84	47.61	1,480.45
185.50	875.48	219.85	92.93	22.79	1,396.55	46.38	1,442.93
2,907.48	8,426.96	2,172.80	391.00	139.01	14,037.25	466.25	14,503.50
			23.94		23.94	.80	24.74
136.25					136.25	4.54	140.79
\$2,802.23	\$5,518.78	\$1,393.33	\$212.99	\$180.92	\$10,108.25	\$335.64	\$10,443.89
2,259.36	7,277.20	1,050.25	226.09	115.44	10,928.34	362.87	11,291.21
388.37	1,645.35	137.15	41.20	16.33	2,228.40	73.99	2,302.39
213.13	9.60	27.34	4.62	4.07	258.76	8.59	267.35
9.24	6.91	15.90	2.31	.50	34.86	1.16	36.02
1,819.81	5,201.63	991.12	139.67	65.69	8,217.92	272.88	8,490.80
141.18	111.60	23.50	15.42	5.10	297.10	9.86	306.96
171.63	38.35	78.72		26.31	315.01	10.47	325.48
\$5,348.85	\$12,471.60	\$1,794.26	\$712.74	\$194.44	\$20,521.89	\$681.55	\$21,203.44
666.00	2,496.24	639.07	182.18	45.40	4,028.89	133.81	4,162.70
804.62	2,370.89	330.05	107.65	33.11	3,646.32	121.10	3,767.42
552.98	1,538.44	155.59	58.84	46.47	2,352.32	78.12	2,430.44
89.59	20.22	15.80	1.50	1.93	129.04	4.29	133.33
343.53	127.00	230.07		59.73	760.33	25.25	785.58
25.71	14.45	10.20	2.22		52.58	1.75	54.33
198.45	20.07	8.94			227.46	7.55	235.01
\$342,187.20	\$520,497.50	\$202,225.37	\$11,885.62	\$17,861.55	\$1,124,657.24	\$37,355.36	\$1,162,012.60

OF BRIDGES.

\$12.35			\$3.95		\$16.30	\$.54	\$16.84
\$3,760.61	\$897.66	\$245.61	\$50.59	\$228.71	\$5,183.18	\$172.11	\$5,355.29
\$1,423.19	\$186.90	\$2.50		\$210.84	\$1,823.43	\$60.54	\$1,883.97
\$721.38	\$710.67	\$.51	\$164.76	\$2,766.32	\$4,363.64	\$144.93	\$4,508.57
\$721.39	\$710.67	\$.49	\$165.62	\$2,766.35	\$4,364.52	\$144.93	\$4,509.45
\$3,753.48	\$897.67	\$240.39	\$51.64	\$228.75	\$5,171.93	\$171.74	\$5,343.67
\$1,423.48	\$186.91	\$2.50		\$210.86	\$1,823.75	\$60.56	\$1,884.31
\$11,815.88	\$3,590.48	\$492.00	\$436.56	\$6,411.83	\$22,746.75	\$755.35	\$23,502.10

STATE ROADS

STATE ROAD

TOTAL COST OF MAINTENANCE, INCLUDING OILING ON STATE

County	Location of Road	Miles of Road
Baltimore.....	Baltimore City Limits—Howard County Line.....	5.79
Howard.....	Baltimore County Line—Prince George's County Line.....	10.04
Prince George's. . .	Howard County Line—D. C. Line.....	14.30
	Totals.....	30.13

* All Maintenance Expenditures before April 2, 1914, under State Road Fund, are included in Exhibit "A," Schedule No. 6, Part I.

Exhibit "A," Schedule No. 6, Part II.

COMMISSION.

No. 1 FUND.

ROAD No. 1, FROM *APRIL 2, 1914, TO DECEMBER 31, 1915.

Labor, Including Patrolmen, Assistants, Oiling, Etc.	Material, Including Oils, Screenings, Etc.	Hire of Teams and Equipment	Inspection and Supervision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Tota Cost of Maintaining Roads
\$3,434.26	\$3,796.63	\$1,199.89	\$508.66	\$125.23	\$9,064.67	\$329.83	\$9,394.50
\$8,583.88	\$10,395.34	\$4,818.71	\$809.53	\$447.73	\$25,055.19	\$911.63	\$25,966.82
\$7,912.26	\$8,877.88	\$4,452.63	\$543.46	\$575.94	\$22,362.17	\$813.66	\$23,175.83
\$19,930.40	\$23,069.85	\$10,471.23	\$1,861.65	\$1,148.90	\$56,482.03	\$2,055.12	\$58,537.15

STATE ROADS

ROADS AND

TOTAL COST OF MAINTENANCE ON BRIDGES

County	Name of Bridge	Labor
Anne Arundel.....	College Creek Bridge.....	\$449.72
Anne Arundel.....	Severn River Bridge.....	\$6,725.01
Cecil and Harford.....	Conowingo Bridge.....	\$3,406.93
	Totals.....	\$10,581.66

Exhibit "A," Schedule No. 6, Part III.

COMMISSION.

BRIDGES FUND.

FROM JUNE 1, 1910, TO DECEMBER 31, 1915.

Materials	Hire of Teams and Equipment	General Bridge Repairs	Inspection and Super vision	Miscella- neous, Including Tools and Tests	Total	Administra- tion, Legal and General Engineering Expenses	Total Cost of Maintaining Bridges
\$5.39	\$.62	.....	\$1.10	\$69.31	\$526.14	\$19.27	\$545.41
\$4,669.03	\$1,211.81	\$4,072.54	\$285.25	\$322.13	\$17,285.77	\$632.96	\$17,918.73
\$2,657.32	\$44.56	.....	\$175.50	\$528.96	\$6,813.27	\$249.49	\$7,062.76
\$7,331.74	\$1,256.99	\$4,072.54	\$461.85	\$920.40	\$24,625.18	\$901.72	\$25,526.90

MAINTENANCE DIVISION.

1912.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq Yd.	Character of Top Dressing
Allegheny	Fekhart Mines—Frostburg	0140 A	1.00	8,213	Asphaltoline	72.95	5,184	\$751.54	\$601.23	14.2	Grit
	Frostburg—Fekhart Mines	0140 C	0.25	2,053	Asphaltoline						Limestone Chips
	Garrett Co. Line—Frostburg	0144	0.64	13,470	Asphaltoline	44.00	6,714	1,150.00	701.22		Limestone Chips
	Standard Wise—R. R. Crossing	0140 B	1.00	4,975	Asphaltoline		2,805	307.50	580.19		Limestone Chips
	Red Hill—Six-Mile House	0142	0.53	7,720	Asphaltoline	36.40	4,400	487.32	518.42	9.4	Limestone Chips
Anne Arundel	Allegheny Co. Li.—McKenzie Store	0146 B	0.94	3,655	Asphaltoline	32.47	1,439	193.09	508.13	17.7	3/4" Limestone Chips
	Brooklyn—Glenburnie	0191	5.32	45,725	Trinidad "A"	126.30	12,114	1,499.97	281.95		Grit and Sand
	Winchester—Revell	0271 A	1.83	17,177	Ugite "B"	77.35	8,000	819.41	447.77	9.0	Washed Gravel
	Boon—Magothy River	0272	3.06	28,724	Ugite "B"	145.80	16,060	1,081.22	353.34	10.2	Grit
	Magothy River—Glenburnie	0273	1.31	12,266	Tarvia "B"	76.25	7,159	853.35	651.41	12.4	Grit
Baltimore	Mt. Washington—Seminary Ave.	0180 A	1.16	9,490	Ugite "B"	75.25	5,200	518.77	447.21	13.8	Trap Rock Chips
Caroline	Federalburg—Dorchester Co. Line	052	1.12	9,199	Stand. Oil No. 5		5,775	327.83	292.70		Local Sand
	Watts Creek—Two Johns	053	3.21	26,364	Ugite "B"		6,800	537.54	167.46		Local Grit
	Spr. Branch—Pasapee Ldg.	055 A	1.13	9,281	Ugite "B"		5,576	486.67	430.68		Local Grit
Carroll	Westminster—Cranberry Sta.	0201	1.25	10,266	Ugite "B"	51.7	5,376	478.99	383.19	10.0	Granite Chips
Cecil	Oakland—Octoraro Creek	040	3.10	25,460	Texico Special	134.51	7,586	1,210.48	390.48	10.5	Granite Chips
	Elkton—Sineedy	043	2.36	19,383	Texico Special		6,823	783.36	331.93		Local Sand
	N. Br. Back Cr.—Chesapeake City	045	0.88	7,227	Texico Special		3,000	488.19	554.76		Local Sand
Charles	White Plains—La Plata	0150	4.64	38,108	Ugite "B"		10,700	986.43	212.59		Local Sand
	Pr. George's Co. Line—White Plains	0151	6.27	51,496	Ugite "B"		25,900	2,154.92	343.68		Local Grit
Dorchester	Hurlock—Federalburg	070	5.33	43,777	Stand. Oil No. 5		23,560	1,564.91	293.60		Local Sand
	East New Market—Shiloh Church	071-2	1.61	13,223	Ugite "B"		6,700	500.18	316.28		Local Sand
	Shiloh Church—Brookview	073	4.40	36,137	Ugite "B"		20,780	1,650.05	375.10		Local Sand
	Emmitsburg Pike	E. P.	1.27	10,431	Asphaltoline		5,166	594.09	467.78		No Covering
Frederick	Sutton—Allegany Co. Line	0160	3.61	28,112	Asphaltoline	90.70	8,297	1,332.81	369.19	6.4	Grit
Garrett	Oakland—Thayerville	0161	5.56	45,666	Asphaltoline		8,109	932.54	167.72		No Covering
	Thayerville—McHenry	0162	2.84	23,326	Asphaltoline	120.00	11,270	1,614.23	568.39	10.3	Limestone Chips
Harford	Churchville—Aberdeen	0170	4.43	36,384	Ugite "B"	334.40	21,500	2,213.64	499.68	18.3	Trap Rock Chips
	Kalmia—Deer Creek	0172	2.22	18,233	Texico Special	90.00	10,049	1,353.44	609.65	9.8	Granite Chips

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Concluded.
1912.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material.	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Howard.....	West Friendship—Sykesville.....	0220	4.62	37,945	Fairfield.....	213.50	18,720	\$1,924.25	\$416.50	11.2	Grit
	Ridgeville—Near Montg. Co. Line	0260	2.33	19,136	Ugite "B".....	113.30	13,200	528.28	528.28	11.8	Limestone Chips
	State Road No. 1.....		10.00	86,777	Ugite "B".....	117.00	27,300	3,573.95	357.39	2.6	1" Granite Chips
Kent.....	Chestertown—Big Woods Road.....	0120	3.26	26,764	Texico Special.....		6,000	606.98	186.19		Local Grit
	Big Woods Road—Kennedyville.....	0121	4.58	37,618	Ugite "B".....		19,400	1,881.13	410.73		Local Sand
Montgomery....	Germantown Rd.—Cedar Grove.....	0235	2.86	23,488	Ugite "B".....		6,753	700.66	244.98		Chips Purchased by Contractor
Prince George's..	D. C. Line—Camp Springs.....	0131	6.12	50,244	Texico Special.....		23,463	3,389.51	553.84		Local Sand
	Camp Springs—T. B.....	0133	3.22	26,444	Texico Special.....		12,248	1,619.27	502.88		Local Sand
	State Road No. 1.....		8.11	70,699	Ugite "B".....	143.35	21,000	2,505.30	306.92		Washed Gravel
Queen Anne's...	Kent Co. Line—Rahb's Road.....	0100	3.01	24,721	Sun Co. 16 G. R.....		12,837	1,039.85	352.11		Local Grit
	Burrisville—Centerville.....	0101	3.04	24,968	Ugite "B".....	138.20	8,000	855.75	281.49		Granite Chips
	Ralph's Road—Church Hill.....	0103	3.48	28,591	Sun Co. 16 G. R.....		14,150	1,486.37	427.12		Local Grit
	Church Hill—Starkley Cor.....	0104	1.97	16,180	Ugite "B".....	85.90	8,600	809.08	410.70	10.6	Limestone Chips
St. Mary's.....	Mechanicsville—Chaptico Road.....	020	5.34	37,594	Ugite "B".....		13,363	1,587.72	297.32		Local Grit
	McIntosh Run—Leonardtown.....	021	3.49	24,570	Ugite "B".....		8,000	881.56	252.39		Local Grit
Somerset.....	Princess Anne—King's Creek.....	090	2.91	20,486	Ugite "B".....	108.90	12,000	1,153.61	392.96	10.6	1" Limestone Chips
	King's Creek—Westover.....	091	3.40	27,924	Stand. Oil No. 5.....	144.60	10,091	1,114.87	327.90	10.3	1" Limestone Chips
	Westover—Kingston.....	092	4.31	35,398	Texico Special.....	18.05	11,739	1,333.76	309.45	10.2	1" Limestone Chips
Talbot.....	Easton—Flemming's Switch.....	0110	3.03	24,885	Asphaltoline.....		9,121	1,006.00	332.01		Local Sand
Washington.....	Near Clearspring—St. Paul's Ch.....	0210	2.01	12,289	Asphaltoline.....	100.00	6,145	818.02	406.97	16.2	Limestone Chips
	Hagerstown—Funkstown.....	0219	2.27	18,349	Asphaltoline.....		9,179	1,100.96	485.00		No Covering
Wicomico.....	Rockwalking Rd.—Mardella Spr.	080	3.22	26,444	Stand. Oil No. 5.....		10,286	678.07	210.58		Local Grit
	State Road—Mardella Springs.....	081 A B	7.24	54,993	Ugite "B".....		24,000	2,291.45	316.49		Local Grit
	Fruitland Road—Allen.....	084	4.83	39,669	Texico Special.....		10,646	963.94	199.99		Local Grit
Worcester.....	Berlin—Germantown.....	060	6.55	46,133	Texico Special.....		23,189	2,338.93	357.09		Local Sand
	Totals.....		177.85	1,447,850		2,572.08	602,082	\$63,795.14	\$358.70		

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION.

1913.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Allegheny	Frostburg—Eckhart Mines.	0140 A	1.00	8,213	Trinidad "A"	60.00	3,800	\$496.98	\$397.59	11.6	Limestone Chips
	Frostburg—Eckhart Mines.	0140 C	0.25	2,053	Trinidad "A"	95.00	2,113	401.61	401.61	23.1	Limestone Chips
	Garrett Co. Line—Frostburg	0140 B	1.00	8,213	Trinidad "B"	142.07	13,557	1,543.65	462.17	10.3	Limestone Chips
	Naves Farm Rd.—Six-Mile House	0141	3.33	27,350	Ugite "B"	98.61	5,000	722.94	451.84	15.0	Limestone Chips
	Stand. Oil Whse.—R. R. Crossing	0142	1.62	13,875	Trinidad "A"	30.00	3,146	232.55	363.36	11.4	Limestone Chips
	McKenzie's Store—Cumberland	0148	0.64	5,256	Trinidad "A"	205.20	15,893	2,183.78	570.18	13.0	Limestone Chips
	Garrett Co. Line—Frostburg	0144	3.83	31,457	Ugite "B"	30.00	2,400	297.64	457.89	11.4	Limestone Chips
	Six-Mile House—Martin's Mt.	0145	0.65	5,227	Trinidad "A"	354.95	26,006	2,811.29	528.43	15.5	Washed Gravel
	Eckhart Mines—Red Hill	0146	5.32	45,725	Trinidad "A" and Ugite "B"	45.60	1,688	212.80	116.28	5.3	Washed Gravel
	Brooklyn—Glenburne	0191	2.60	24,405	Tarvia "B"	184.90	16,021	1,393.79	536.07	15.1	Washed Gravel
Anne Arundel	Winchester—Revell	0271 A	1.83	17,177	Ugite "B"	213.40	12,004	1,706.01	383.37	11.6	Trap Rock Chips
	Revell—Boon	0271 C	2.60	24,405	Tarvia "B"	15.83	1,000	150.75	558.33	14.2	Washed Gravel
	Mt. Washington—Seminary Ave.	0180 A	4.45	36,549	Trinidad "A" and Ugite "B"	135.70	6,000	618.89	317.38	13.1	Washed Gravel
	City Limits—St. Timothy's Lane	00180 B	0.27	2,217	Tarvia "B"	85.10	8,000	940.32	482.52	8.1	Trap Rock Chips
	City Limits—Herring Run	0182	1.95	20,592	Tarvia "B"	44.80	2,500	527.16	1,171.47	12.1	Trap Rock Chips
	City Limits—Franklin Ave.	0189	1.95	19,788	Tarvia "B"	97.75	7,229	853.69	330.88	9.2	Granite Chips
	Franklin Ave.—Hamilton Ave.	0186 B	0.45	7,392	Ugite "B"	67.30	5,073	680.57	373.94	9.0	Granite Chips
	State Road No. 1	055 A	1.13	9,281	Ugite "B"	184.40	10,980	1,366.86	425.81	13.9	Granite Chips
	Pasapee Landing—Denton	050	2.58	21,190	Ugite "B"	105.70	8,000	1,892.55	335.55	9.6	Granite Chips
	Denton—Watts Creek	051	1.82	14,948	Ugite "B"	131.95	8,196	895.64	304.64	10.9	Granite Chips
Caroline	Watts Creek—Two Johns	053	3.21	26,364	Ugite "B"	45.60	3,122	377.97	334.48	9.8	Granite Chips
	Lewis Tree Road—Eldersburg	054	2.66	21,847	Ugite "B"	30.62	12,400	2,497.18	471.16	11.6	Limestone Chips
	Greensboro—Spring Branch	055	2.94	24,146	Ugite "B"	221.62	10,700	720.11	458.67	13.0	Limestone Chips
	Spring Branch—Pasapee Landing	055 A	1.13	9,281	Ugite "B"	84.35	7,500	885.35	272.41	9.1	Local Sand
	Gamber—Fenby	0203 A	5.30	43,530	Tarvia "B"	228.00	14,000	1,485.05	323.54	12.1	Washed Gravel
	Gamber—Fenby	0203 B	1.57	12,895	Tarvia "B"	27.80	4,004	345.27	345.27	7.1	Limestone Chips
	Sykesville—Eldersburg	0200	1.25	10,266	Tarvia "B"	122.10	8,000	897.56	289.53	9.6	Granite Chips
	Westminster—Cranberry Station	0201	1.57	12,895	Tarvia "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
	Eldersburg—Gamber Station	0202	4.59	37,698	Tarvia "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
	Nicodemus Road	0206	1.00	7,763	Tarvia "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
Cecil	Oakwood—Octoraro Creek	040	3.10	25,400	Ugite "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
	Rising Sun—Near Sylmar Road	041	3.25	26,692	Ugite "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
	Elkton—Singularly	043	2.36	19,383	Ugite "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
	N. Br. Back Cr.—Chesapeake City	045	0.88	7,227	Ugite "B"	133.00	8,000	885.35	272.41	9.1	Local Sand
						133.00	8,000	885.35	272.41	9.1	Local Sand

Note—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Continued.
1913.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Charles	White Plains—La Plata	0150	4.67	38,108	Tarvia "B"		11,197	\$1,001.18	\$245.77	.....	Local Gravel
	Pr. George & Co. Line—White Plains	0151	6.27	51,496	Tarvia "B"		13,413	1,369.75	218.45	.....	Local Gravel
Dorchester	Mt. Holly—East New Market	072	5.96	48,951	Ugite "B"	357.95	16,000	2,185.43	366.69	14.6	Granite Chips
	Shiloh Church—Brookview	073	4.40	36,137	Ugite "B"	177.03	14,000	1,497.13	340.26	9.8	Granite Chips
	Cambridge—Mt. Holly	075	1.76	16,520	Ugite "B"	43.15	8,700	838.49	476.41	11.2	Limestone Chips
	Vienna Road—Vienna	075	0.84	6,898	Ugite "B"	43.35	3,240	378.87	451.03	12.6	Limestone Chips
Frederick	New Market—New London	0240	2.99	24,557	Ugite "B"	144.20	8,600	935.57	312.93	11.7	Washed Gravel
	New Market—Kempstown Road	0241	1.34	11,065	Ugite "B"	71.00	3,500	329.91	365.46	12.9	Limestone Chips
	Parkersville—Petersville	0242	2.42	36,630	Ugite "B"	228.65	12,800	1,610.00	360.98	12.5	Washed Gravel
	Old Monrovia Road	0243	1.67	21,959	Ugite "B"	164.25	8,350	1,138.34	426.34	14.9	Limestone Chips
	Middletown	0247	4.44	11,827	Ugite "B"	32.70	4,000	389.12	277.16	5.5	Washed Gravel
	State Road Through Jefferson	0247	1.40	36,069	Trinidad "A"	188.55	13,945	1,570.91	357.02	10.4	Washed Gravel
	Bridgeville—Near Monig, Co. Line	0240	1.13	34,281	Ugite "B"	137.65	2,680	203.32	179.92	.....	No Covering
	Emmitsburg Pike	0240	2.32	19,517	Tarvia "B"	137.65	8,000	773.68	332.05	14.3	Limestone Chips
	E. P.	E. P.	1.26	10,345	Ugite "B"	89.80	1,900	487.44	386.86	17.3	Washed Gravel
Garrett	Sutton—Allegheny Co. Line	0160	3.61	28,112	Trinidad "A"	207.00	11,012	1,192.57	330.35	13.9	Limestone Chips
	Oakland—Thayerville	0161	5.56	45,666	Ugite "B"	275.00	13,192	1,700.24	305.80	12.0	Limestone Chips
	Thayerville—McHenry	0162	2.84	23,326	Ugite "B"	183.00	7,958	1,010.33	355.96	13.7	Limestone Chips
Harford	Churchville—Aberdeen	00170	0.85	5,984	Tarvia "B"		9,153	848.62	160.72	.....	Local Gravel
	St. Ignatius' Ch.—Grafton Shops	0170	4.43	36,385	Tarvia "B"	51.10	7,600	723.20	246.82	4.2	Limestone Chips
	Little Gunpowder—Benson	0171	2.83	23,063	Tarvia "B"	139.00	11,700	1,254.89	443.12	14.5	Limestone Chips
	Dublin—Susquehanna River	0173	4.89	33,692	Tarvia "B"	269.25	13,042	1,606.20	378.82	15.4	Granite Chips
	Belair—Kalma	0174	4.24	34,824	Tarvia "B"	363.45	20,962	2,362.86	386.09	14.4	Limestone Chips
	Boole—Dobbin	0175	1.12	30,296	Tarvia "B"	91.85	7,200	810.05	570.45	18.4	Granite Chips
	Boole—Dobbin	0176	1.42	34,967	Tarvia "B"	183.30	8,950	1,114.63	420.62	16.8	Limestone Chips
	Benson—Belair	0178	2.65	21,765	Tarvia "B"						
Howard	West Friendship—Sykesville	0220	4.62	37,946	Tarvia "B"	300.70	10,400	1,227.35	265.65	15.9	Washed Gravel
	Doughoregan—Ellicott City	0222	5.18	42,543	Tarvia "B"	249.42	27,669	2,452.36	473.43	11.7	Washed Gravel and Limestone Chips
	State Road No. 1		10.00	86,777	Tarvia "B" and Trinidad "A"	368.85	19,534	2,793.49	278.79	8.5	Washed Gravel
Kent	Chestertown—Big Woods Road	0120	3.26	26,775	Ugite "B"		9,146	1,135.51	348.31	.....	Local Sand
	Big Woods Road—Kennedyville	0121	4.58	37,618	Ugite "B"	86.35	12,740	1,402.87	306.30	4.3	Granite Chips
	Kennedyville—Locust Grove	0122	1.94	15,563	Ugite "B"	105.95	10,114	981.42	505.88	13.3	Limestone Chips

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Concluded.

1913.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Montgomery	Rockville—Gaithersburg	0230	4.39	34,882	Ugite "B"	254.05	18,635	\$1,848.42	\$421.05	14.1	Washed Gravel
	Darnestown—Gaithersburg	0231	5.49	45,091	Tarvia "B"	220.90	26,787	2,474.56	450.74	9.8	Washed Gravel
	Germantown Road—Cedar Grove	0235	2.86	23,490	Tarvia "B"	39.90	8,000	844.59	295.31		
Prince George's	Meadows—Upper Marlboro	0130	5.76	47,307	Ugite "B"	265.00	16,000	1,808.51	313.98	12.2	Washed Gravel
	D. C. Line—Camp Springs	0131	6.12	50,265	Tarvia "B"		14,726	1,006.09	164.39		Local Gravel
	Camp Springs—T. B.	0133	3.22	26,447	Tarvia "B" and Ugite "B"		22,500	1,579.25	490.45		Local Gravel
	State Road No. 1		11.32	93,280	Tarvia "B" and Trinidad "A"	212.70	30,769	3,659.12	323.24		Washed Gravel
Queen Anne's	Kent Co. Line—Ralph's Road	0100	3.01	24,722	Ugite "B"		11,307	1,018.49	338.36		Local Sand
	Burrsville—Centreville	0101	3.04	24,968	Ugite "B"	138.00	6,430	1,775.56	255.12	11.5	Granite Chips
	Starkley Cor.—Burrsville	0102	3.15	25,872	Ugite "B"	139.65	8,510	1,042.63	330.99	10.8	Granite Chips
	Ralph's Road—Church Hill	0103	3.48	28,582	Ugite "B"		9,857	1,061.07	304.89		Local Sand
	Church Hill—Starkley Cor.	0104	1.97	16,180	Ugite "B"	70.95	9,984	908.31	461.07	8.8	Granite Chips
St. Mary's	Mechanicsville—Chapin Rd.	020	5.34	37,594	Tarvia "B"		14,161	1,356.33	253.99		Local Gravel
	McIntosh Run—Leonardtown	021	3.49	24,570	Tarvia "B"		9,041	947.28	271.42		Local Gravel
Somerset	Princess Anne—Kings Creek	090	2.91	20,486	Ugite "B"	101.70	5,337	699.40	240.34	9.9	Granite Chips
	Kings Creek—Westover	091	3.40	27,924	Ugite "B"	144.32	6,000	791.78	232.87	10.3	Granite and Limestone Chips
	Westover—Kingston	092	4.31	35,398	Ugite "B"	208.80	14,000	1,639.13	380.30	11.8	Granite and Limestone Chips
Talbot	Flemming's Switch—Skipton Ch.	0111	4.93	40,490	Ugite "B"	215.10	15,086	1,737.11	352.37	10.1	Granite and Limestone Chips
Washington	Fairview Mt.—St. Paul's Ch.	0210	4.45	36,548	Trinidad "A"	104.40	23,970	2,730.53	423.99	5.7	Inst. Ch. & Wash. Gr.
	Clearspring Road	0213	1.99	14,009	Trinidad "A"	40.70	12,000	1,429.60	576.45	5.8	Inst. Ch. & Wash. Gr.
	Licking Creek—Clearspring	0211	2.48	20,369	Ugite "B"	161.25	16,913	1,949.36	393.81	15.8	Inst. Ch. & Wash. Gr.
	Conococheague—Hagerstown	0215	4.95	40,656	Trinidad "A"	382.35	12,303	1,949.36	393.81	18.8	Inst. Ch. & Wash. Gr.
	Hagerstown—Boonsboro	0219	6.29	51,662	Trinidad "A"	313.70	26,304	2,924.64	464.96	12.1	Inst. Ch. & Wash. Gr.
Wicomico	Rockwalking Rd.—Mardella Spr.	080	5.76	47,309	Ugite "B"	330.30	10,255	1,801.13	312.69	13.9	Granite Chips
	State Road—Mardella Springs	081	7.24	59,465	Ugite "B"	235.40	19,745	2,152.98	297.37	7.9	Granite Chips
	Salisbury—Fruitland Road	082 A	1.38	13,573	Ugite "B"	52.15	4,300			7.6	Granite Chips
	Salisbury—Fruitland Road	082 B	0.76	6,242	Ugite "B"	49.50	3,400	968.17	448.22	12.0	Granite Chips
	Fruitland—Allen	084	4.83	39,669	Ugite "B"	222.75	16,000	1,847.48	382.50	11.2	Granite Chips
Worcester	Berlin—Germantown	060	14.27	100,460	Ugite "B"	606.55	32,000	4,037.56	282.93	12.0	Granite Chips
	Outens Entrance—Pocomoke	062	2.89	20,345	Ugite "B"	163.00	10,663	1,255.12	434.29	15.6	Granite Chips
	Totals		317.23			12,571.97	999,009	\$111,245.14	\$350.67		

Note—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION.

1914.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Allegheny	Frostburg—Eckhart Mines	0140 A	1.00	8,213	Texico Special	58.33	2,700	\$312.30	\$312.30	14.2	Limestone Chips
	Garrett Co. Line—Frostburg	0140 B	1.00	8,213	Texico Special	33.85	2,700	274.26	274.26	9.6	Limestone Chips
	Frostburg—Eckhart Mines	0140 C	0.25	2,053	Texico Special	25.05	600	81.13	324.52	24.3	Limestone Chips
	Nave's Farm Rd.—Six-Mile House	0141	3.33	27,350	Texico Special	165.00	9,636*	508.08	152.58	12.1	Limestone Chips
	Stand. Oil Wise—R. R. Crossing	0142	1.62	13,875	Texico Special	150.42	5,785	723.86	449.00	21.6	Limestone Chips
	Garrett Co. Line—Frostburg	0143	0.64	5,256	Texico Special	44.00	2,008	229.78	359.03	16.7	Limestone Chips
	Six-Mile House—Martin's Mt.	0145	3.53	31,458	Texico Special	151.00	11,019*	611.22	159.59	9.5	Limestone Chips
	Martin's Mt.—Flintstone	0145 B & C	4.12	33,839	Texico Special	216.00	15,536*	1,663.79	403.83	12.7	Limestone Chips
	Eckhart Mines—Red Hill	0146	2.13	11,494	Texico Special	208.60	10,412	1,174.64	551.61	23.8	Limestone Chips
	Red Hill—Six-Mile House	0146 B	0.94	7,720	Texico Special	43.00	2,600	252.69	268.82	11.1	Limestone Chips
Anne Arundel	Annapolis—3 Mile Northerly	0270	3.00	28,161	Tarvia "B"	165.20	7,052	902.70	300.90	11.7	Washed Gravel
	End of Sec. 1—Revell	0271 A	1.53	17,177	Tarvia "B"	60.00	6,000	530.54	290.00	7.0	Washed Gravel
	Revell—Boon	0271 C	2.60	24,406	Tarvia "B"	93.75	8,172	707.63	272.16	7.6	Washed Gravel
	Boon—Magothy River	0272	3.06	28,724	Tarvia "B"	105.00	9,465	801.07	261.79	7.3	Washed Gravel
	Magothy River—Glenburne	0273	5.28	49,561	Trinidad "A"	320.95	16,044	1,971.76	373.44	13.0	Washed Gravel
	Glenburne—Brooklyn	0191	5.32	45,725	Tarvia "B"	296.95	14,675	1,434.59	269.66	15.3	Washed Gravel
Baltimore	City Limits—Mt. Washington	0180	1.13	11,933	Trinidad "A"	77.75	4,800	552.02	488.51	13.0	Limestone Chips
	Mt. Washington—Sennary Ave.	0180 A	4.45	36,549	Trinidad "A"	245.65	17,977	1,934.92	434.81	10.6	Trap Rock Chips
	City Limits—Lansdowne	0181	1.29	13,600	Tarvia "B"	91.10	4,564	481.59	373.25	13.4	Washed Gravel
	City Limits—Herring Run	0182	1.95	20,592	Tarvia "B"	232.25	11,918	1,279.61	656.21	22.0	Trap Rock Chips
	City Limits—Taylor Ave.	0183	2.90	30,624	Tarvia "B"	177.55	11,291	1,078.09	371.75	11.5	Trap Rock Chips
	City Limits—Franklin Ave.	0186	1.95	19,788	Tarvia "B"	97.00	4,981	540.61	277.24	9.8	Trap Rock Chips
	City Limits—Buck's Lane	0188	0.98	10,349	Trinidad "A"	68.77	6,001	619.51	632.14	13.2	Trap Rock Chips
	Valley Road—Cave's Road	0189	2.01	14,245	Trinidad "A"	105.68	8,816	846.20	421.00	15.2	Trap Rock Chips
	Kingsville—Little Gunpowder	B-6	1.15	9,445	Ugite "B"	80.75	8,000	835.51	726.53	17.1	Limestone Chips
	Perry Hall—Kingsville	B-9	2.50	23,911	Ugite "B"	220.90	12,000	1,542.81	617.12	18.5	Limestone Chips
	City Limits—St. Timothy's Lane	B-13	2.48	23,280	Trinidad "A"	265.82	9,000	1,251.92	504.81	22.8	Trap Rock Chips
	Catonsville—Ellicott City	B-14	3.40	27,924	Ugite "B"	347.97	18,473	2,276.09	669.43	24.9	Limestone Chips
	Washington Ave.—Texas Lane	B-20	4.56	37,453	Trinidad "A"	238.80	18,466	1,998.33	438.23	12.7	Limestone Chips
	Texas Road—Glencoe Road	B-21	5.83	47,883	Trinidad "A"	275.85	23,681	2,582.57	442.98	11.5	Limestone Chips
	State Road No. 1	2-40	2.40	28,406	Tarvia "B"	169.35	8,549	847.30	353.05	11.9	Limestone Chips
Carroll	Sparksville—Eldersburg	0200	2.57	19,947	Aztec	99.95	5,000	658.26	256.13	10.1	Washed Gravel
	Westminster—Cranberry Station	0201	1.25	10,266	Aztec	73.55	2,300	308.69	246.95	14.3	Limestone Chips
	Eldersburg—Gamber	0202	4.59	37,698	Aztec	398.85	12,000	1,730.83	377.09	21.2	Washed Gravel
	Gamber—Penby	0203	5.30	43,529	Aztec	280.53	10,373	1,508.55	284.63	10.6	Limestone Chips
	Fountain Valley—Frizzelburg	0204	0.40	3,285	Aztec	44.00	1,500	221.08	552.70	26.8	Limestone Chips
	Nicodemus Road	0206	1.00	7,763	Aztec	40.90	2,300	326.74	326.74	10.5	Limestone Chips
	Sherman's Lane—Manchester	0208 A	1.51	12,402	Aztec	95.82	6,000	670.29	443.90	15.5	Limestone Chips
	Cranberry—Mexico	Cl-7	1.09	8,953	Aztec	72.50	2,600	312.51	286.70	16.2	Limestone Chips
	Ridgeville—Howard Co. Line	Cl-10	1.59	13,059	Aztec	92.15	7,300	705.44	443.67	14.1	Limestone Chips

NOTE.—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Continued.

1914.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Caroline	Pasapee Landing—Denton	050	2.58	21,190	Ugite "B"	87.00	5,500	\$830.64	\$321.95	8.2	Trap Rock Chips
	Federalburg—Dorchester Co. Line	052	1.12	9,199	Ugite "B"	52.00	3,404	407.45	363.79	10.2	Trap Rock Chips
	Tanyard—Bethlehem	C-10	3.18	26,117	Ugite "B"	155.58	13,468	1,337.32	426.83	11.9	Trap Rock Chips
	Oakwood—Octoraro	040	3.10	25,461	Trinidad "A"	137.50	7,995	1,059.74	341.85	10.7	Trap Rock Chips
Cecil	Rising Sun—N. Mt. Sylmar Road	041	3.25	26,693	Trinidad "A"	134.00	7,999	909.68	279.90	10.0	Trap Rock Chips
	Elkton—Smyerly	043	2.36	19,382	Trinidad "A"	102.00	5,979	684.49	290.04	10.5	Trap Rock Chips
	Elkton—North Branch Back Crk.	044	4.38	35,975	Trinidad "A"	319.00	16,500	2,037.35	465.15	17.7	Trap Rock Chips
	North Br. Back Crk.—Ches. City	045	0.88	7,127	Trinidad "A"	36.00	959	207.19	235.44	9.9	Trap Rock Chips
	Elkton—Delaware State Line	C-16	3.15	25,871	Ugite "B"	187.00	7,891	1,039.28	329.43	14.0	Limestone Chips
Charles	White Plains—La. Plata	0150	4.64	38,108	Tarvia "B"	396.00	12,753	1,334.50	287.61	20.8	Local
	Prince Geo. Co. Line—White Pls.	0151	6.27	51,496	Tarvia "B"	73.50	17,161	1,684.28	267.66	2.9	Local
Dorchester	Hurlock—Federalburg	070	5.33	43,777	Ugite "B"	266.70	15,907	1,777.13	333.42	12.1	Trap Rock Chips
	Hurlock—Shiloh Church	071-2	1.61	13,293	Ugite "B"	81.75	3,500	428.31	266.03	12.6	Trap Rock Chips
	East New Market—Shiloh Church	071-3	2.75	22,586	Ugite "B"	150.15	6,000	739.45	268.80	13.3	Trap Rock Chips
	Mt. Holly—East New Market	072	4.78	39,258	Ugite "B"	243.25	12,443	1,674.82	358.63	12.3	Trap Rock Chips
	Cambridge—Mt. Holly	075	1.76	16,520	Ugite "B"	107.80	5,000	579.47	327.58	13.0	Trap Rock Chips
	Vienna Road—Vienna	D-9	0.83	7,217	Ugite "B"	45.90	2,083	266.89	321.55	12.7	Trap Rock Chips
	New Market—New London	0240	2.99	24,557	Aztec	154.30	5,000	652.19	218.12	12.6	Limestone Chips
Frederick	New Market—Kempstown Road	0241	1.34	11,005	Aztec	53.60	2,965	332.90	263.36	9.7	Limestone Chips
	Jefferson—Petersville	0242	4.45	36,630	Aztec	194.40	8,000	994.50	223.00	10.6	Limestone Chips
	Petersville—Haville	0243	2.67	21,929	Aztec	125.95	5,137	531.53	199.08	11.4	Limestone Chips
	Old Monavia Road	0244	1.44	11,827	Aztec	98.95	4,137	524.48	371.17	16.7	Limestone Chips
	Thruout Middlebrook	0246	1.10	9,034	Aztec	63.20	4,600	467.38	424.80	13.9	Limestone Chips
	Middlebrook—Frederick	0247	6.01	54,288	Aztec	349.20	23,315	2,407.64	466.46	12.9	Limestone Chips
	Monocacy River—New Market	0248	5.00	41,065	Aztec	265.75	25,000	2,479.49	495.90	12.9	Limestone Chips
	New Market—Plane No. 4	E-12	2.20	26,282	Aztec	140.81	14,000	1,505.50	470.31	10.7	Limestone Chips
	Plane No. 4—Ridgeville	E-13	2.36	19,382	Aztec	176.60	14,000	1,078.40	458.95	18.2	Limestone Chips
	Frederick—Monocacy River	E-14	1.97	16,180	Aztec	193.44	11,600	1,110.28	563.30	23.9	Limestone Chips
	Harmony Grove—3 Miles North	E-16	2.00	16,426	Ugite	103.65	7,709	869.43	434.22	12.6	Limestone Chips
	Levisburg—Thomont	E-17	3.00	24,639	Ugite	152.25	12,000	1,241.95	413.98	12.4	Limestone Chips
	Throught New Market	F-20	0.66	5,321	Aztec	103.70	3,000	351.47	532.53	39.0	Limestone Chips
	Sutton—Allegany Co. Line	0160	3.61	28,112	Textico Special	352.50	10,200	1,449.07	399.32	25.0	Limestone Chips
	Oakland—Thayerville	0161	5.56	45,606	Textico Special	278.95	15,400	1,846.12	332.03	12.2	Limestone Chips
	Thayerville—Haville	0162	2.84	23,326	Textico Special	142.00	6,400	884.09	314.82	13.2	Limestone Chips
	Grantsville—New Germany Road	G-9	3.03	24,885	Textico Special	183.20	12,969	1,188.13	392.13	15.5	Limestone Chips

Note—Cost figures include no interest, depreciation, supervision or overhead charges.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Harford	Churchville—Aberdeen	0170	4.43	36,384	Tarvia "B"	222.63	9,159	\$1,279.52	\$288.83	12.2	Limestone Chips
	Churchville—Aberdeen	00170	0.85	5,984	Tarvia "B"	40.50	1,511	249.26	293.25	13.5	Limestone Chips
	St. Ignatius' Ch.—Grafton Slops.	0171	2.93	23,053	Trinidad "A"	148.05	5,800	747.44	255.10	12.8	Limestone Chips
	Kalma—Deer Creek	0172	2.22	18,233	Trinidad "A"	101.35	4,200	673.48	303.37	11.1	Limestone Chips
	Little Gunpowder—Benson	0173	2.85	23,692	Trinidad "A"	155.12	7,559	1,010.65	354.40	13.1	Limestone Chips
	Dublin—Susquehanna River	0174	4.24	34,824	Trinidad "A"	237.20	12,448	1,588.19	374.57	14.8	Granite Chips
	Belair—Kalma	0175	6.12	50,266	Trinidad "A"	293.85	12,500	1,692.29	276.52	11.7	Limestone Chips
	Poole—Dublin	0176	1.42	9,997	Trinidad "A"	3.400	3,400	371.64	261.72	11.1	Granite Chips
	Benson—Belair	0178	2.35	19,301	Trinidad "A"	150.80	6,900	881.20	374.98	15.6	Limestone Chips
	Belair—Churchville	H-11	5.36	44,022	Tarvia "B"	454.13	33,560	4,185.87	390.47	20.6	Limestone Chips
	Deer Creek—Poole	H-13	0.91	7,473	Trinidad "A"	45.85	3,645	576.40	633.41	12.3	Granite Chips
	Aberdeen—Havre de Grace	H-16	3.65	29,979	Ugite "B"	170.25	14,891	1,596.16	437.31	11.4	Trap Rock Chips
Howard	Mt. Airy—Damascus	0260	2.33	19,136	Aztec	101.45	5,797	564.35	242.21	10.6	Limestone Chips
	West Friendship—Sykesville	0220	4.62	37,916	Aztec	280.65	8,986	1,536.38	333.51	12.4	Washed Gravel
	Ellicott City—Doughoregan	0222	5.18	42,543	Aztec	12,828	1,923.48	255.50	12.2	Washed Gravel	
	Near West Friendship—Lisbon	Ho-4	4.77	39,176	Aztec	496.05	23,403	2,643.63	554.22	25.3	Limestone Chips and Gravel
	Doughoregan—Near W. Friendship	Ho-5	4.45	36,548	Ugite	297.55	24,057	2,603.87	585.14	16.3	Limestone Chips and Gravel
	Lisbon—S. Br. Patapsco River	Ho-6	3.97	32,606	Ugite	224.85	13,500	1,964.00	494.71	13.8	Limestone Chips and Gravel
Kent	Ellicott City—Elioak	Ho-7	3.37	27,677	Ugite	319.15	16,758	1,920.03	569.74	23.1	Limestone Chips and Gravel
	State Road No. 1		10.00	86,777	Tarvia "B" and Trinidad "A"	861.10	27,529	3,500.14	350.01	19.8	275+24 Gravel
	Chestertown—Big Woods Road	0120	3.26	26,774	Trinidad "A"	142.00	6,735	882.13	270.59	10.6	Granite Chips
	Big Woods Road—Kennedyville	0121	4.58	37,618	Trinidad "A"	252.28	9,384	1,211.19	264.45	13.4	Limestone and Trap Rock Chips
	Kennedyville—Locust Grove	0122	1.94	15,933	Trinidad "A"	90.00	4,004	493.29	254.27	11.2	Limestone and Trap Rock Chips
Montgomery	Locust Grove—Mill Creek	0124 A	2.01	14,150	Trinidad "A"	140.00	7,314	817.06	406.50	10.9	Granite Chips
	Locust Grove—Galena	0124 B	1.08	7,603	Trinidad "A"	72.10	4,000	472.40	437.41	18.9	Trap Rock Chips
	Rockville—Gaithersburg	0230	4.39	34,882	Tarvia "B"	281.00	13,936	1,647.80	375.35	16.1	Washed Gravel
	Darkestown—Gaithersburg	0231	6.37	52,316	Tarvia "B"	295.50	25,270	2,740.95	430.29	11.3	Washed Gravel
	Germanatown Road—Cedar Grove	0235	3.31	27,187	Tarvia "B"	221.15	8,838	1,169.50	353.32	16.3	Limestone Chips
	Germanatown—Cedar Grove	0236	2.00	16,426	Tarvia "B"	118.80	8,146	848.84	444.42	14.5	Limestone Chips
	D. C. Line—Linden	M-11	4.01	34,109	Tarvia "B"	221.40	16,763	1,477.93	368.56	13.0	Limestone Chips
	Linden—Near Wheaton	M-12	2.00	16,426	Tarvia "B"	173.20	8,991	965.99	482.99	21.1	Limestone Chips
Prince George's	D. C. Line—Camp Springs	0131	1.35	11,088	Tarvia "B"	169.00	3,587	392.64	290.84	30.5	Local
	Camp Springs—T. B.	0133	5.98	49,115	Tarvia "B"	98.50	16,207	1,578.56	263.97	4.0	Local
	Bennings—Marlboro	0138	1.31	10,759	Tarvia "B"	92.45	5,291	614.69	469.23	17.2	Local
	State Road No. 1		11.89	93,280	Tarvia "B"	479.30	39,937	3,796.52	319.30	10.3	Limestone Chips and Washed Gravel

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Concluded.

1914.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs of Chips per Sq.Yd.	Character of Top Dressing
Queen Anne's	Kent Co. Line—Ralph's Road	0100	3.01	24,721	Trinidad "A"	156.10	15,048	\$1,593.13	\$529.28	12.6	Granite Chips
	Burrville—Centreville	0101	0.75	6,460	Trinidad "A"	50.00	1,500	334.25	445.66	16.2	Granite Chips
	Starkville—Burrville	0102	3.15	25,872	Trinidad "A"	183.30	6,525	804.09	274.31	14.9	Granite Chips
	Ralph's Road—Church Hill	0103	3.48	28,382	Trinidad "A"	163.03	7,151	921.23	264.72	11.4	Granite Chips
	Church Hill—Starkville	0104	1.97	16,180	Trinidad "A"	137.80	3,437	499.91	253.76	17.0	Granite Chips
	Centreville—Jackson	0105	2.49	17,530	Trinidad "A"	306.85	19,214	2,183.10	438.38	41.7	Granite Chips
	Centreville—Wyo Mills	0107	3.43	27,025	Ugite "B"	225.75	15,686	1,734.36	475.17	16.7	Trap Rock Chips
Somerset	King's Creek—Westover	091	3.40	27,924	Ugite "B"	122.93	6,638	823.98	242.35	8.8	Trap Rock Chips
	Westover—Kingston	092	4.31	35,398	Ugite "B"	223.40	12,630	1,482.32	343.93	12.6	Trap Rock Chips
St. Mary's	Mechanicsville—Chapline Road	020	5.34	37,594	Tarvia "B"	80.00	8,650	1,004.40	188.09	4.3	Trap Rock Chips
	McIntosh Run—Leonardtown	021	3.49	24,570	Tarvia "B"	138.00	6,450	733.52	210.18	12.9	Local
Talbot	Easton—Fleming's Switch	0110	3.03	24,885	Ugite "B"	149.25	8,500	1,017.11	335.68	12.0	Trap Rock Chips
	Easton—Dover Bridge	0114	3.13	22,035	Ugite "B"	145.20	11,500	1,224.73	391.29	13.2	Trap Rock Chips
	Easton—Dover Bridge	0114 B	0.76	7,133	Ugite "B"	51.95	3,600	364.52	479.63	14.5	Granite Chips
Washington	Fairview Mt.—St. Paul's Church	0210	4.45	36,548	Texico Special	202.60	8,809	1,211.56	274.50	11.1	Limestone Chips
	Clearspring—Jacking Creek	0211	4.51	37,041	Texico Special	200.00	13,964*	1,535.85	340.54	10.8	Local Chips
	Clearspring—Reed	0213	1.99	14,009	Texico Special	117.10	3,502	536.71	269.70	16.7	Limestone Chips
	Hauck—Tonoloway	0214	1.95	14,869	Texico Special	94.40	15,385	697.43	357.66	12.7	Limestone Chips
	Conococheague—Hagerstown	0215	6.14	50,429	Texico Special	299.69	18,439	2,135.57	347.81	11.8	Limestone Chips
	Exline—Tonoloway	0217 A	2.01	16,509	Texico Special	85.85	6,900	766.17	381.17	10.4	Limestone Chips
	Tonoloway—Harvey	0217 B	1.68	13,789	Texico Special	92.20	6,978	896.25	533.48	13.4	Limestone Chips
	Boonsboro—Frederick Co. Line	W-9	2.03	16,672	Texico Special	100.00	11,845	975.89	480.73	12.0	Limestone Chips
	Hagerstown—Boonsboro	W-10	6.29	51,662	Texico Special	425.00	18,473	1,918.52	305.01	16.4	Limestone Chips
	Rockwalking Rd.—Mardella Spr.	080	5.76	47,309	Ugite "B"	258.95	11,683	1,574.85	273.41	10.9	Granite Chips
Wicomico	Mardella Springs—Riverton	081 A	4.70	38,601	Ugite "B"	203.25	9,279	1,249.65	265.88	10.5	Granite Chips
	Riverton—Sharptown	081 B	2.54	20,801	Ugite "B"	124.75	5,350	768.95	301.95	12.0	Trap Rock Chips
	State Road—Mardella Springs	081 C	0.37	3,038	Ugite "B"	39.12	2,580	317.51	858.13	25.7	Granite Chips
	Salsbury—Fruitland Road	082 B	0.76	6,242	Ugite "B"	79.42	1,000	79.42	103.14	13.1	No Chips
	Fruitland Road—Allen	084	4.83	39,669	Ugite "B"	259.15	10,650	1,550.27	321.17	13.1	Limestone Chips
Worcester	Berlin—Snow Hill	090	14.27	100,462	Ugite "B"	745.60	33,260	4,289.91	300.62	14.8	Trap Rock and Granite Chips
	Snow Hill—Pocomoke	091	3.22	22,669	Ugite "B"	94.22	12,894	1,421.38	441.42	8.7	Trap Rock and Granite Chips
	Outens Entrance—Pocomoke	092	2.89	21,037	Ugite "B"	137.15	7,012	918.85	317.94	13.04	Trap Rock Chips
	Snow Hill—Hardscup Branch	093	2.42	17,037	Ugite "B"	114.60	8,900	975.59	403.10	13.4	Granite Chips
Totals								\$162,879.92	\$363.45	.....	.....

* Total of 38,395 gallons applied but not paid for.

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION.

1915.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Allegany	Frostburg—Pekhart Mines	0140 A	8,213	Aztec	79.95	2,700	\$363.32	\$363.32	19.4	Limestone Chips
	Frostburg—Garrett Co. Line	0140 B	8,213	Aztec	45.68	4,200	501.67	501.67	11.1	Limestone Chips
	Frostburg—Pekhart Mines	0140 C	1.00	Aztec	15.00	800	381.72	381.72	14.6	Limestone Chips
	Naves Farm Rd.—Six-Mile House	0141	27,350	Ugite "B"	198.55	8,416	1,248.54	374.93	14.5	Limestone Chips
	St. d Oil Wile.—Penn Over Road	0142	13,875	Aztec	111.85	5,400	637.04	393.84	16.1	Limestone Chips
	Frostburg—Garrett Co. Line	0144	5,256	Aztec	45.68	2,800	320.26	390.40	17.3	Limestone Chips
	Six-Mile House—Martin's Mt.	0145 A	31,456	Ugite "B"	229.10	10,148	1,421.60	371.17	14.5	Limestone Chips
	Martin's Mt.—Flinstone	0145 B	25,544	Aztec	205.90	10,477	1,569.97	504.81	16.1	Limestone Chips
	Martin's Mt.—Flinstone	0145 C	8,295	Aztec	65.95	2,750	547.70	542.27	15.9	Limestone Chips
	Red Hill—Six-Mile House	0146 A	7,720	Aztec	60.00	2,400	326.30	347.14	15.5	Limestone Chips
	Pekhart Mines—Red Hill	A-7	17,658	Aztec	129.10	6,100	737.61	343.08	14.6	Limestone Chips
	Naves Farm Rd.—Cumberland	A-11	15,605	Aztec	127.17	6,744	819.06	431.08	16.3	Limestone Chips
Baltimore	Mt. Washington—Seminary Ave.	0180 A	9,490	Trinidad "A"	76.70	3,160	486.82	419.67	16.2	Limestone Chips
	City Limits—Herring Run	0182	20,592	Trinidad "A"	164.52	6,876	821.56	421.32	15.8	Trap Rock Chips
	City Limits—Taylor Ave.	0183	30,624	Trinidad "A"	175.00	8,041	930.54	320.88	11.4	Trap Rock Chips
	City Limits—Franklin Ave.	0186	19,788	Trinidad "A"	177.49	8,043	867.94	445.09	17.9	Trap Rock Chips
	City Limits—Buck's Lane	0188	10,349	Trinidad "A"	99.20	3,450	455.63	464.93	19.1	Trap Rock Chips
	Valley Road—Cave's Road	0189	14,245	Trinidad "A"	248.52	10,438	1,185.47	589.78	34.8	Limestone Chips and Washed Gravel
	Kingsville—Little Gunpowder	B-6	9,445	Trinidad "A"	127.00	6,646	714.31	333.78	14.4	Limestone Chips
	Perry Hall—Kingsville	B-9	23,911	Trinidad "A"	175.75	7,400	840.79	336.31	14.7	Limestone Chips
	Near Perry Hall—Gunpowder Riv.	B-9 A	12,858	Trinidad "A"	159.85	6,640	744.01	543.07	24.8	Limestone Chips
	City Limits—St. Timothy's Lane	B-13	23,280	Trinidad "A"	208.90	8,226	1,076.07	433.89	17.9	Trap Rock Chips
Caroline	Catoonsville—Ellicott City	B-14	27,924	Trinidad "A"	295.30	8,033	1,426.97	331.46	21.1	Washed Gravel
	Buck's Lane—Old Court Road	B-15	35,726	Trinidad "A"	262.37	16,352	1,782.73	409.82	14.7	Trap Rock Chips
	Washington Ave.—Texas Road	B-20	37,453	Trinidad "A"	286.05	12,483	1,587.54	348.14	15.3	Limestone Chips
	Texas Road—Glencoe Road	B-21	47,883	Trinidad "A"	423.75	17,294	1,920.33	329.38	17.7	Limestone Chips
	Glencoe—Verona	B-22	6,160	Trinidad "A"	80.15	4,500	585.94	563.40	26.0	Limestone Chips
	Baltimore and Washington Road		50,300	Tarvia "B"	623.80	10,801	1,861.18	428.84	24.8	1/2" Chips
	Pasape Landing—Denton	050	21,190	Ugite "B"	132.95	6,574	825.62	320.00	12.5	Limestone Chips
	Greensboro—Fedoralsburg	051	14,948	Ugite "B"	98.50	4,700	592.33	325.46	13.1	Trap Rock Chips
	Denton—Fedoralsburg	053	26,364	Ugite "B"	164.50	8,786	1,180.96	367.90	12.5	Trap Rock Chips
	Greensboro—Denton	054	21,847	Ugite "B"	136.00	7,121	846.86	336.42	12.4	Trap Rock Chips
	Greensboro—Denton	055	24,146	Ugite "B"	147.00	8,043	906.40	308.29	12.2	Trap Rock Chips
	Greensboro—Denton	055 A	9,281	Ugite "B"	49.00	3,049	363.08	321.31	10.5	Trap Rock Chips
	Tanyard—Bethlehem	Co-10	26,117	Ugite "B"	162.00	8,450	991.57	311.81	12.4	Trap Rock Chips
	Goldsboro—Greensboro	Co-16	31,866	Ugite "B"	189.50	16,005	1,568.94	404.37	11.5	Trap Rock Chips

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Continued.

1915.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Carroll	Sykesville—Eldersburg	0200	2.57	19,947	Aztec	131.00	5,146	\$562.35	\$218.81	13.2	Washed Gravel and Limestone Chips
	Westminster—Cranberry Station	0201	1.25	10,266	Aztec	66.00	2,727	297.61	222.09	12.8	Washed Gravel and Limestone Chips
	Eldersburg—Gamber	0202	4.59	37,698	Aztec	305.75	12,826	1,615.28	351.91	16.2	Washed Gravel
	Gamber—Fenby	0203 A	2.63	21,600	Aztec	158.15	6,950	820.46	311.96	14.5	Limestone Chips
	Gamber—Fenby	0203 B	2.67	21,929	Aztec	134.95	6,972	830.10	310.89	12.3	Limestone Chips
	Fountain Valley—Friedsburg	0204	0.40	3,285	Aztec	25.00	1,168	134.01	335.02	15.1	Limestone Chips
	Nicodemus Road	0206	1.00	7,763	Aztec	63.50	2,000	289.99	289.99	16.3	Limestone Chips
	Sherman's Line—Cranberry	0208 A	12.402	12,402	Aztec	112.40	4,283	504.24	333.93	18.1	Limestone Chips
	Mexico—Manchester	Cl-6	5.09	41,855	Aztec	284.34	19,883	2,010.42	400.86	13.5	Limestone Chips
	Cranberry—Mexico	Cl-7	1.09	8,953	Aztec	67.00	3,305	346.94	318.29	14.9	Limestone Chips
Cecil	Ridgeville—Howard Co. Line	Cl-10	1.59	13,059	Aztec	94.00	3,800	398.91	250.82	14.1	Limestone Chips
	Oakwood—Octoraro Creek	040	3.10	25,460	Aztec	181.24	6,355	760.49	245.32	14.2	Limestone Chips
	Rising Sun—Near Sylmar Road	041	3.25	26,692	Aztec	193.45	6,416	729.91	224.59	14.5	Limestone Chips
	Elkton—Singerly	043	2.36	19,383	Aztec	126.70	5,263	617.30	261.57	13.0	Limestone Chips
	Elkton—North Branch Back Cr.	044	4.38	35,973	Aztec	293.10	11,640	1,879.02	429.00	16.3	Limestone Chips
	N. Br. Back Cr.—Chesapeake City	045	0.88	7,227	Aztec	49.50	1,800	256.59	325.63	13.7	Limestone Chips
	Charlestown—North East	049 D	5.53	45,404	Aztec	406.40	23,876	2,489.47	450.18	17.8	Trap Rock Chips
	Elkton—Delaware State Line	Ce-16	3.15	25,871	Aztec	195.15	6,434	1,037.36	329.32	15.0	Limestone Chips
	White Plains—La Plata	0150	4.64	38,108	Tarvia "B"	488.00	12,328	1,142.25	246.18	25.6	Local Gravel
	Pr. George's Co. Line—W. Plains	0151	6.27	51,496	Tarvia "B"	406.00	17,200	1,835.46	292.74	15.7	Local Gravel
Dorchester	Cambridge—Church Cr. Road	D-8	6.05	50,972	Ugite "B"	564.44	25,315	2,986.20	493.58	22.1	Washed Gravel
	Vicenna Road	D-13	3.64	29,895	Ugite "B"	237.70	12,068	1,347.05	370.07	15.9	Trap Rock and Limestone Chips
	Cambridge—Mt. Holly	075	1.76	16,520	Ugite "B"	99.85	5,200	617.67	350.95	12.1	Trap Rock and Limestone Chips
	Shiloh Church—Brookview	073	4.40	36,137	Ugite "B"	250.37	11,957	1,399.53	318.08	13.8	Trap Rock and Granite Chips
Frederick	Mt. Holly—East New Market	072	1.18	9,691	Ugite "B"	102.90	5,357	2,158.15	362.11	21.2	Limestone Chips
	Mt. Holly—East New Market	072	4.78	39,258	Ugite "B"	250.00	15,357	2,158.15	362.11	12.7	Limestone Chips
	Emmitsburg—Pa. State Line	F-20	1.23	10,102	Aztec	57.55	5,131	562.83	457.58	11.3	Limestone Chips
	Through New Market	F-20	0.66	5,421	Aztec	72.65	1,500	183.95	278.71	26.8	Limestone Chips
	Lewistown—Thurmont	F-17	3.00	24,639	Aztec	181.56	9,727	930.10	310.03	14.7	Limestone Chips
	Harmony Grove—5 Miles North	F-16	2.50	20,533	Aztec	148.07	10,600	1,026.26	410.50	14.4	Limestone Chips
	Frederick—Monocacy River	F-14	1.97	16,180	Aztec	139.00	4,800	480.93	244.12	17.2	Limestone Chips
	Plane No. 4—Ridgeville	F-13	2.36	19,383	Aztec	158.55	5,413	584.25	251.80	16.3	Limestone Chips
	New Market—Plane No. 4	F-12	3.20	26,282	Aztec	191.90	7,729	808.07	252.52	14.6	Limestone Chips

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Continued.

1915.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Frederick (Continued)	New Market—New London	0240	2.99	24,557	Asphc.	159.06	6,766	\$731.14	\$244.53	12.8	Limestone Chips
	Jefferson Pike	00240	6.93	56,918	Asphc.	367.72	23,391	2,486.72	358.75	12.9	Limestone Chips
	New Market—Kempitown	0241	1.34	11,065	Asphc.	144.92	2,600	332.05	262.71	26.3	Limestone Chips
	Jefferson—Petersville	0242	4.46	36,630	Asphc.	264.58	10,620	1,254.12	281.14	14.4	Limestone Chips
	Petersville—Knoxville	0243	2.67	21,929	Asphc.	153.25	5,600	594.12	222.51	13.9	Limestone Chips
	Old Monrovia Road	0244	1.44	11,827	Asphc.	151.90	3,534	408.24	283.50	25.7	Limestone Chips
	Middletown	0246	1.10	9,034	Asphc.	98.20	3,600	451.49	410.44	21.7	Limestone Chips
	Frederick—Middletown	0247	6.61	54,288	Asphc.	411.72	18,446	1,780.61	269.38	15.1	Limestone Chips
	Monocacy River—New Market	0248	5.00	41,065	Asphc.	190.97	11,858	1,210.45	242.09	9.3	Limestone Chips
	Emmingsburg Pike	E. P.	1.26	10,345	Asphc.	72.85	2,829	348.64	276.69	14.1	Limestone Chips
	Allegheny Co. Line—Sutton	0160	3.61	28,112	Ugite "B"	241.00	14,000	1,959.68	542.85	17.0	Limestone Chips
	Oakland—Thayerville	0161	3.06	24,639	Asphc.	183.78	8,178	1,200.10	392.19	14.9	Limestone Chips
	Oakland—Thayerville	0161	2.50	20,532	Asphc.	153.17	3,400	651.95	260.78	14.9	Limestone Chips
Garrett	Thayerville—McHenry	0162	6.67	54,781	Ugite "B"	350.00	21,980	2,759.14	413.66	12.8	Limestone Chips
	McHenry—Arcadia	0163	4.39	30,906	Ugite "B"	259.50	15,254	2,368.70	480.47	16.7	Limestone Chips
	Through Grantsville	G-8	0.85	7,000	Asphc.	45.00	3,500	484.85	570.41	12.8	Limestone Chips
	New Germany Road—Grantsville	G-9	3.03	24,885	Asphc.	176.15	8,786	1,120.90	369.93	14.1	Limestone Chips
Harford	Churchville—Alderden	0170	4.43	36,384	Asphc.	262.45	9,100	1,034.09	233.42	14.4	Trap Rock Chips
	Churchville—Alderden	00170	0.85	5,984	Asphc.	53.65	1,400	277.92	326.96	17.9	Trap Rock Chips
	St. Ignace—Ch—Grafton Shops	0171	2.93	23,653	Asphc.	206.10	5,426	729.19	248.87	17.8	Limestone Chips
	Kalmia—Deer Creek	0172	2.22	18,233	Asphc.	125.50	4,665	616.79	277.83	13.7	Limestone Chips
	Little Gunpowder—Benson	0173	2.85	23,692	Asphc.	178.55	6,000	728.28	309.90	15.7	Limestone Chips
	Dublin—Susquehanna River	0174	4.24	34,824	Asphc.	262.65	8,650	987.52	232.90	15.1	Limestone Chips
	Belair—Kalmia	0175	6.12	50,266	Asphc.	382.02	12,858	1,683.94	275.15	15.2	Limestone Chips
	Poole—Dublin	0176	1.42	9,997	Asphc.	95.57	2,500	450.52	402.25	19.2	Limestone Chips
	Benson—Belair	0178	2.35	19,301	Asphc.	182.30	4,909	763.36	324.83	18.8	Limestone Chips
	Grafton Shops—Jarrettville	11-10	2.57	20,920	Asphc.	274.65	15,260	1,912.47	752.94	26.2	Limestone Chips
	Belair—Churchville	11-11	5.36	44,022	Asphc.	325.18	10,677	1,333.75	248.83	14.7	Trap Rock Chips
	Deer Creek—Poole	11-13	0.91	7,473	Asphc.	87.56	2,400	708.13	778.82	23.4	Limestone Chips
	Grafton Shops—Jarrettville	11-14	2.65	21,764	Asphc.	300.00	16,579	1,739.59	656.45	27.5	Limestone Chips
Howard	Baltimore and Washington Road	0260	10.00	86,777	Tarvia "B"	690.45	24,050	3,276.05	327.60	15.8	Limestone Chips
	Mt. Airy—Damascus	0260	2.33	19,136	Asphc.	192.95	5,359	616.98	264.79	20.1	Limestone Chips
	Doughogan—Ellicott City	0222	5.18	42,543	Asphc.	312.80	10,147	1,313.18	253.51	14.7	Washed Gravel and Limestone Chips
	West Friendship—Sykesville	0220	4.42	37,946	Asphc.	277.90	10,378	1,171.62	263.59	14.6	Washed Gravel and Limestone Chips
	Lisbon—West Friendship	110-4	4.77	39,176	Asphc.	283.15	11,233	1,396.34	292.73	14.4	Washed Gravel and Limestone Chips
	West Friendship—Lisbon	110-5	5.42	44,514	Asphc.	210.30	14,654	1,661.06	306.46	9.4	Washed Gravel and Limestone Chips
	Lisbon—S. Br. Patapsco River	110-6	3.97	32,006	Asphc.	254.45	11,506	1,265.80	318.84	15.6	Limestone Chips
	Ellicott City—Eltank	110-7	3.37	27,676	Asphc.	303.70	8,832	1,159.04	343.92	22.1	Limestone Chips

NOTE.—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Continued.
1915.
TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Kent.....	Big Woods Road—Kennedysville.....	0121	4.58	37,618	Atreco.....	342.09	9,558	\$1,161.93	\$253.69	18.2	Limestone Chips
	Kennedysville—Locust Grove.....	0122	1.94	15,933	Atreco.....	225.39	5,444	629.99	324.74	28.2	Trap Rock Chips
	Chesertown—Fairlee.....	0123	2.85	24,229	Atreco.....	182.80	4,711	1,349.84	457.37	15.6	Trap Rock Chips
	Locust Grove—Mill Creek.....	0124 A	2.01	14,150	Atreco.....	118.95	3,700	659.77	328.24	16.8	Limestone Chips
	Locust Grove—Galena.....	0124 B	1.08	7,463	Atreco.....	65.00	2,480	261.19	241.84	17.1	Limestone Chips
Montgomery....	Rockville—Gaithersburg.....	0230	4.39	34,382	H. G. R. No. 51	250.85	8,598	1,065.84	242.79	11.4	Limestone Chips
	Darnestown—Gaithersburg.....	0231	6.37	52,317	H. G. R. No. 51	391.45	23,820	2,570.78	403.57	14.9	Limestone Chips
	Rockville—Norbeck.....	0232	2.64	21,700	H. G. R. No. 51	155.70	10,479	1,095.88	415.10	14.4	Limestone Chips
	Darnestown—Buck Lodge Road.....	0233	2.99	24,551	H. G. R. No. 51	203.35	12,611	1,344.75	449.75	16.6	Limestone Chips
	Germanstown Road—Cedar Grove.....	0235	3.31	27,187	H. G. R. No. 51	185.93	6,084	872.94	263.73	13.4	Limestone Chips
	Cedar Grove—Germanstown.....	0236	2.00	16,426	H. G. R. No. 51	132.55	5,219	738.38	369.19	16.1	Limestone Chips
	D. C. Line—Linden.....	M-11	4.01	31,108	H. G. R. No. 51	240.05	11,500	1,222.20	304.79	14.7	Limestone Chips
	Linden—Near Wheaton.....	M-12	5.00	41,065	H. G. R. No. 51	346.37	18,130	2,021.39	404.27	14.8	Limestone Chips
	Norbeck—Olney.....	M-13	2.00	16,426	H. G. R. No. 51	125.04	7,964	928.31	464.16	15.2	Limestone Chips
	Through Gaithersburg.....	M-14	1.20	9,856	H. G. R. No. 51	81.32	5,404	493.13	410.95	16.5	Limestone Chips
Prince George's...	Forrestville—Marlboro.....	0130	5.76	47,307	Tarvia "B"	230.00	15,156	1,544.15	268.08	9.7	Local Gravel
	D. C. Line—Camp Spring.....	0131	1.35	11,088	Tarvia "B"	83.00	5,553	585.46	433.68	14.9	Local Gravel
	Camp Spring—T. B.....	0133	5.98	49,114	Tarvia "B"	152.00	24,600	2,198.15	367.59	6.2	Local Gravel
	Benning—Marlboro.....	0138	1.31	10,759	Tarvia "B"	74.00	4,202	416.65	318.06	13.7	Local Gravel
	Baltimore and Washington Road.....		13.54	113,920	Tarvia "B"	1,035.20	33,755	3,878.55	286.45	18.2	Limestone Chips
Queen Anne's....	Kent Co. Line—Rahbit's Road.....	0100	3.01	24,721	Atreco.....	188.50	8,150	1,161.44	385.86	15.2	Trap Rock Chips
	Burnsville—Centerville.....	0101	3.04	24,968	Atreco.....	176.00	6,024	657.04	216.13	14.1	Trap Rock Chips
	Starkley Cor.—Burnsville.....	0102	3.15	25,871	Atreco.....	199.00	6,690	900.95	286.02	15.4	Trap Rock Chips
	Centerville—Jackson.....	0105	2.49	17,530	Atreco.....	147.00	8,795	753.54	302.63	16.7	Trap Rock Chips
	Jackson—Wye Mills.....	0107	4.65	32,726	Atreco.....	288.00	9,280	1,905.66	409.82	17.6	Trap Rock Chips
	Church Hill—Roberts Station.....	Q-9	4.12	30,377	Atreco.....	199.00	18,744	3,316.44	804.96	13.1	Trap Rock Chips
	Through Church Hill.....	Q-12	0.66	5,420	Atreco.....	34.50	3,400	258.53	391.71	12.7	Trap Rock Chips
St. Mary's.....	Mechanicsville—Chapico Road.....	020	5.34	37,594	Tarvia "B"	350.00	9,600	1,171.80	219.44	18.6	Local Gravel
	McIntosh Run—Leonardtown.....	021	3.49	24,570	Tarvia "B"	240.00	6,256	1,030.39	295.24	19.5	Local Gravel
Somerset.....	Princess Anne—Westover.....	090	2.91	20,486	Ugite "B"	150.65	5,903	795.11	273.24	14.7	Granite Chips
	King's Creek—Westover.....	091	3.40	27,924	Ugite "B"	186.45	11,696	1,256.14	369.45	12.6	Granite and Trap Rock Chips
	Westover—Kingston.....	092	4.31	35,398	Ugite "B"	399.25	13,867	1,789.97	415.31	22.5	Trap Rock Chips
	Carroll Cor.—Marion.....	S-4	5.32	43,710	Ugite "B"	376.40	21,818	2,702.14	507.92	17.2	Trap Rock Chips

NOTE—Cost figures include no interest, depreciation, supervision or overhead charges.

MAINTENANCE DIVISION—Concluded.

1915.

TABLE SHOWING COST OF ROAD SURFACE TREATMENT.

County	Location of Road	Contract Number	Miles	Square Yards	Bituminous Material	Tons of Chips	Number of Gallons	Total Cost	Cost per Mile	Lbs. of Chips per Sq. Yd.	Character of Top Dressing
Talbot	Easton—Fleming's Switch	0110	3.03	24,885	Atreco	125.00	6,000	\$565.45	\$186.62	10.8	Granite Chips
	Easton—Wye Mills	0111	4.93	40,490	Atreco	229.45	13,097	1,280.77	259.79	11.3	Granite and Limestone Chips
	Easton—Dover Bridge	0114	3.13	22,035	Atreco	152.35	9,142	812.15	259.47	13.8	Granite and Limestone Chips
	Easton—Dover Bridge	0114 B	0.76	7,134	Atreco	48.45	2,840	236.06	310.60	13.5	Granite and Limestone Chips
Washington	Dover Bridge Road	0265	0.99	8,157	Atreco	60.00	4,200	487.12	492.04	14.7	Gravel
	Fairview Mt.—St. Paul's Ch.	0210	4.45	36,548	Aztec	243.30	9,208	1,417.21	318.47	13.3	Limestone Chips
	Clearspring—Licking Creek	0211	4.51	37,041	Aztec	307.69	12,010	1,712.62	379.74	16.6	Limestone Chips
	Clearspring Road	0213	1.90	14,009	Aztec	97.35	3,700	530.89	266.77	13.8	Limestone Chips
	Hancock—Tonoloway	0214	1.95	14,809	Aztec	136.75	5,000	676.10	346.72	18.3	Limestone Chips
	Hagerstown—Conococheague	0215	6.14	50,429	Aztec	318.60	12,500	1,840.24	299.71	12.5	Limestone Chips
	Tonoloway—Exline	0217 A	2.01	16,509	Aztec	153.05	5,000	743.25	371.63	18.5	Limestone Chips
	Hancock—Allegany Co. Line	0217 B	1.68	13,798	Aztec	108.00	5,000	723.37	430.58	15.4	Limestone Chips
	Hancock—Allegany Co. Line	0217 C	1.93	15,842	Aztec	116.00	5,284	950.49	492.48	14.6	Limestone Chips
	Harvey—Allegany Co. Line	0217 D	1.69	13,979	Aztec	117.00	7,034	1,084.45	641.69	23.8	Limestone Chips
	Boonsboro—Hagerstown	0219	6.29	51,992	Aztec	534.00	16,831	2,616.24	415.93	20.6	Limestone Chips
	Millstone—Hancock	W-7 A	4.14	34,048	Aztec	238.40	17,256	1,986.03	479.72	14.0	Limestone Chips
	Millstone—Hancock	W-7 B	3.49	28,064	Aztec	166.90	13,625	1,430.10	409.77	11.6	Limestone Chips
	Boonsboro—Frederick Co. Line	W-9	2.03	16,672	Aztec	145.40	6,700	904.43	445.53	17.4	Limestone Chips
	Through Boonsboro	W-12	0.76	7,111	Aztec	49.65	3,555	416.49	548.01	13.9	Limestone Chips
	Through Clearspring	W-14	0.45	4,208	Aztec	35.20	2,400	284.21	631.57	16.7	Limestone Chips
Wicomico	State Road—Mardella Springs	081 C	0.37	3,038	Ugite	28.05	1,550	228.81	618.41	18.4	Trap Rock Chips
	Fruitland Road—Allen	084	4.83	39,069	Ugite	218.40	10,089	1,533.11	317.41	12.5	Granite Chips
Worcester	Snow Hill—Pocomoke	061	3.22	22,069	Ugite	234.05	11,496	1,565.27	486.11	11.8	Trap Rock Chips
	Snow Hill—Hardship Br.	063	2.42	17,037	Ugite	120.95	4,784	738.56	305.19	14.1	Trap Rock Chips
Totals							1,444,712	\$176,972.29	\$351.28		

Note.—Cost figures include no interest, depreciation, supervision or overhead charges.

CONTRACTS AND CONTRACTORS.
1912-1915.
(STATE ROADS.)

County	Contract No.	Location	Contractor
Allegany.....	A-10 A-11 A-12	Flintstone—Washington County Line. Nave's Farm Road—Cumberland. Six-Mile House—McKenzie's.....	I. G. Robinson, Hancock, Md. Thomas, Bennett & Hunter, Westminster, Md. Yang Construction Co., Cumberland, Md.
Anne Arundel.....	AA-5 AA-6 AA-7	Mt. Zion—Birdsville..... Birdsville—South River..... Annapolis—South River.....	Winston & Co., Brown Station, N. Y. Bettis & Boice, Rensselaer, N. Y. F. M. Duvall, St. Margarets, Md.
Calvert.....	035 C-7 C-7 A C-7 B C-11	Solomon's Island Sea Wall..... Solomon's Island—Port Republic..... Solomon's Island Sea Wall..... Solomon's Island Fill..... Solomon's Island—Port Republic.....	State Forces. State Forces. Stobaugh Contracting Co., New York, N. Y. Fred Taylor, Sollers, Md. Fred Taylor, Sollers, Md.
Caroline.....	Co-9 Co-12 Co-13 Co-14 Co-15 Co-16	Denton—Fedoralsburg..... Dover Bridge—Linchester..... Denton—Fedoralsburg..... Dover—Linchester..... Q. A. County Line—Goldsboro..... Goldsboro—Greensboro.....	Chesapeake Construction Co., Preston, Md. Chesapeake Construction Co., Preston, Md. Holt Construction Co., Denton, Md. J. Stuart Bond, Vickers Bldg., Baltimore, Md. Holt Construction Co., Denton, Md. Junata Paving Co., Philadelphia, Pa.
Carroll.....	Cl-5 Cl-6 Cl-9 Cl-11 Cl-13 Br	Fountain Valley —Frizzelburg..... Mexico—Manchester..... Tuneytown—Frizzelburg..... Copperville—Frizzelburg..... Meadow Branch Bridge.....	I. C. Moller, Washington, D. C. Winston & Co., Brown Station, N. Y. Hassam Paving Co., Worcester, Mass. Crisswell-Mallory Co., Mechanicsville, N. Y. Thomas, Bennett & Hunter, Westminster, Md.
Cecil.....	044 047 049 A 049 D Ce-14 Ce-14 A Ce-15 Ce-15 A Ce-17	Elkton—Chesapeake City..... Conowingo—Oakwood..... Perryville—Northeast..... Charlestown—Northeast..... Chesapeake City—Bohemia River..... Through Chesapeake City..... Bohemia River—Fredericktown..... Through Cecilton..... Through Northeast.....	Allen Engineering & Contracting Co., Elkton, Md. Pugh & Hubbard, Philadelphia, Pa. E. Ward Brown, Port Deposit, Md. H. B. Sproul Construction Co., Peekskill, N. Y. Carpenter Co., Baltimore, Md. H. B. Sproul Construction Co., Peekskill, N. Y. Carpenter Co., Baltimore, Md. M. J. Best, Philadelphia, Pa. H. B. Sproul Construction Co., Peekskill, N. Y.
Charles.....	0154 B Ch-6 Ch-8 Ch-10 Ch-11	Thompkinsville—Rock Point..... Bel Alton—Lothair..... La Plata—Bel Alton..... Bryantown—Hughesville..... La Plata—Ripley.....	C. H. Hoyt, Washington, D. C. Austin-Bennett Construction Co., Baltimore, Md. H. S. Swann, La Plata, Md. H. S. Swann, La Plata, Md. Thomas Nullan, Baltimore, Md.
Dorchester.....	074 D-7 D-8	Brookview—Sharpstown..... Linchester—Hurlock..... Cambridge—Church Creek.....	H. B. Sproul Construction Co., Peekskill, N. Y. Amber-Davis Co., Philadelphia, Pa. Humphrey & Bentley, Cambridge, Md.

CONTRACTS AND CONTRACTORS—Continued.
1912-1915.
(STATE ROADS.)

County	Contract No.	Location	Contractor
Frederick	0246	Through Middletown.	M. J. Grove Lime Co., Lime Kiln, Md.
	00240	Through Jefferson.	M. J. Grove Lime Co., Lime Kiln, Md.
	00241	Tuscarora Creek Bridge.	Arthur & Boyle, Baltimore, Md.
	F-15	Middletown.	Baumbarger-Chapman Co., East Orange, N. J.
	F-16	Harmony Grove, North.	D. M. Andrews Contracting Co., Baltimore, Md.
	F-17	Lewistown—Thurmont.	D. M. Andrews Contracting Co., Baltimore, Md.
	F-20	Through New Market.	M. J. Grove Lime Co., Lime Kiln, Md.
Garrett	F-22	Emmitsburg—Pennsylvania State Line.	Besler, Long Co., Hagerstown, Md.
	0163	McHenry—Accident.	J. E. Francis, Punxsutawney, Pa.
	0164	Allegheny County Line—Piney Grove.	Baumbarger-Chapman Co., East Orange, N. J.
	G-6	McHenry—Accident.	State Forces.
	G-8	Through Grantsville.	Fogel & Co., Hollidaysburg, Pa.
	G-10	Grantsville—Keyser.	Rob Roy Construction Co., Albany, N. Y.
	G-11	Keyser—Pennsylvania State Line.	Rob Roy Construction Co., Albany, N. Y.
Harford	G-12	Accident—Keyser.	Rob Roy Construction Co., Albany, N. Y.
	H-10	Grafton Shops—Jarrettsville.	Luck Construction Co., Roanoke, Va.
	H-14	Grafton Shops—Jarrettsville.	E. Ward Brown, Port Deposit, Md.
Howard	H-5	West Friendship—Lisbon.	Stier-March Contracting Co., Philadelphia, Pa.
	H-6	Lisbon—Catroll County Line.	Clark-Hayward Co., Baltimore, Md.
	H-7	Elioak—Clarksville.	W. H. Claggett, Pikesville, Md.
Kent	0123	Chestertown—Fairlee.	Betts & Boice, Remsen, N. Y.
	0124 B	Locust Grove—Galena.	Juniata Co., Philadelphia, Pa.
	K-7	Galena—Georgetown.	Juniata Co., Philadelphia, Pa.
	K-7 A	Through Galena.	M. J. Best, Philadelphia, Pa.
Montgomery	0233	Darnestown—Buck Lodge Road.	Harper & Voigt, Philadelphia, Pa.
	0234	Gaithersburg—Germantown.	Chas. T. Eastburn Co., Yardley, Pa.
	M-9	Danascus—Friendship.	W. H. H. Allen Construction Co., Washington, D. C.
	M-12	Union Turnpike—Wheaton 5 miles North.	L. N. Jolinston, Arlington, Va.
	M-13	Norbeck—Olney.	Chas. T. Eastburn Co., Yardley, Pa.
	M-14	Through Gaithersburg.	C. H. Hoyt, Washington, D. C.
Prince George's	0132	District Columbia Line—Marlboro.	Maguire Construction Co., Norfolk, Va.
	0135	T. B.—Charles County Line.	Maguire Construction Co., Norfolk, Va.
	Pg-8	District Columbia Line—Seat Pleasant.	Harper & Voigt, Washington, D. C.
	Pg-10	Seat Pleasant—Largo.	Chesapeake Construction Co., Preston, Md.
	Pg-12	District Columbia Line—Camp Springs.	Chas. T. Eastburn Co., Yardley, Pa.
	Pg-13	Meadows—Camp Springs.	H. S. Swann, La Plata, Md.
	Pg-14	Marlboro—Hills Bridge.	P. F. Connolly Co., Horseheads, N. Y.

CONTRACTS AND CONTRACTORS—Continued.
1912-1915.
(STATE ROADS.)

County	Contract No.	Location	Contractor
Queen Anne's	0106	Bridge.....	B. B. Gonder, Strasburg, Pa.
	0107	Centreville—Wye Mills.....	The Juniata Co., Philadelphia, Pa.
	Q-9	Church Hill—Roberts Station.....	Burgess Bros. & Burgess, Scottsville, Va.
	Q-10	Roberts Station—Caroline County Line.....	Chesapeake Construction Co., Preston, Md.
	Q-11	Through Centreville.....	H. B. Sproul Construction Co., Peekskill, N. Y.
St. Mary's	Q-12	Through Church Hill.....	
	023	Mechanicsville—Charles County Line.....	Hassam Paving Co., Worcester, Mass.
	SM-5	Leonardtown—St. Mary's City.....	Luck Construction Co., Roanoke, Va.
	SM-6	Leonardtown—St. Mary's City.....	W. P. McDonald Constr. Co., Mt. Vernon, N. Y.
	SM-7	Leonardtown—St. Mary's City.....	Luck Construction Co., Roanoke, Va.
	SM-8	St. Mary's City—Ridge.....	Luck Construction Co., Roanoke, Va.
	SM-9	Ridge—Monument.....	Fred Taylor, Sellers, Md.
	SM-10	Leonardtown—Great Mills.....	Luck Construction Co., Roanoke, Va.
	093	Kingston—Marion.....	Humphrey & Bentley, Cambridge, Md.
	094	Allen—Princess Anne.....	Winston & Co., Brown Station, N. Y.
Somerset	S-8	Marion—Hopewell.....	McNerney Construction Co., Canton, Pa.
	0112	Easton—Wye Mills.....	Hassam Paving Co., Worcester, Mass.
	0114	Easton—Dover Bridge.....	Chesapeake Construction Co., Preston, Md.
	0114 B	Easton—Dover Bridge.....	Chesapeake Construction Co., Preston, Md.
	T-8	Easton—Trappe.....	Austin-Bennett Construction Co., Baltimore, Md.
Talbot	0211	Clearspring—Licking Creek.....	Highway Construction Co., Frederick, Md.
	W-7 A & B	Millstone—Hancock.....	Winston & Co., Brown Station, N. Y.
	W-11	Hancock—Allegany County Line.....	I. G. Robinson, Hancock, Md.
	W-12	Through Boonsboro.....	The Juniata Co., Philadelphia, Pa.
	W-13	Through Funkstown.....	J. B. Wolfkill, Hagerstown, Md.
	W-14	Through Clearspring.....	Hollinger & Dornan, Clearspring, Md.
	W-15	Through Hancock.....	F. J. McGuire, Baltimore, Md.
	083 A	Salisbury—Rockawalking.....	Murray Construction Co., Knoxville, Tenn.
Wicomico	083 B	Salisbury—Powell's Siding.....	Murray Construction Co., Knoxville, Tenn.
	085 A	Salisbury—Berlin.....	County
	W-8	Salisbury—Berlin.....	McNerney Construction Co., Canton, Pa.
	061	Snow Hill—Pocomoke.....	County
Worcester	W-o-5	St. Martin's—Berlin.....	Juniata Co., Philadelphia, Pa.
	W-o-6	Berlin—Ocean City.....	Phillips & Neal, Hurlock, Md.
	W-o-7	Wicomico County Line—St. Martin's.....	McNerney Construction Co., Canton, Pa.
	W-o-8	Betheden Church—Hardship Branch.....	Field, Baker & Underwood, Philadelphia, Pa.
	W-o-9	Pocomoke—Virginia State Line.....	J. S. Bond, Baltimore, Md.
	W-o-10	Pocomoke—Stockton.....	J. S. Bond, Baltimore, Md.
	W-o-11	Pocomoke—Stockton.....	Russo-Parker Construction Co., Hudson, N. Y.
	W-o-6 A	Berlin—Ocean City.....	The Juniata Co., Philadelphia, Pa.

CONTRACTS AND CONTRACTORS—Concluded.
1912-1915.
(STATE ROADS.)

County	Contract No.	Location	Contractor
Baltimore.	B-6	Kingsville—Harford County Line.	Luck Construction Co., Roanoke, Va.
	B-8	Hamilton Avenue—Perry Hall.	Barker, Bonner, Inc., New York, N. Y.
	B-9	Perry Hall—Kingsville.	Fisher & Carozza, Baltimore, Md.
	B-12	St. Timothy's Lane—Montrose Avenue.	D. M. Andrews Construction Co., Baltimore, Md.
	B-13	City Limits—St. Timothy's Lane.	D. M. Andrews Construction Co., Baltimore, Md.
	B-14	Montrose Avenue—Ellicott City.	Fisher & Carozza, Baltimore, Md.
	B-14 A	Ellicott City Bridge.	Luten Bridge Co., York, Pa.
	B-15	Buck's Lane—Old Court Road.	Luck Construction Co., Roanoke, Va.
	B-16	City Limits—Goxvans.	Elder Paving & Contracting Co., Baltimore, Md.
	B-17	Goxvans—Towson.	Elder Paving & Contracting Co., Baltimore, Md.
	B-18	English Consul Estate—Patapsco River.	George Maguire, Baltimore, Md.
	B-19	Through Towson.	Elder Paving & Contracting Co., Baltimore, Md.
	B-21	Texas Road—Glencoe Road.	Forsythe & Clark, Baltimore, Md.
	B-22	Glencoe Road—Verona.	The Penn Construction Co., Baltimore, Md.
Baltimore City.	Be-2	North Avenue—City Limits (Belair Road).	P. Flanagan & Sons, Baltimore, Md.
	Be-2 S	Belair Road—Storm Water Drains.	Smith & Ruggles, Baltimore, Md.
	Be-3-1	Bentall Street—Cemetery Gate (Frederick Ave.).	H. F. Faust, Baltimore, Md.
	Be-3-2	Cemetery Gate—City Limits (Frederick Ave.).	H. F. Faust, Baltimore, Md.
	Be-3 Br	Bridge over Gwynn's Falls (Frederick Ave.).	Elkan-Tuft Construction Co., Baltimore, Md.
	Be-8	Reisterstown Road—Grading.	P. Flanagan & Sons, Baltimore, Md.
	Be-8-1	Reisterstown Road—Elgan Avenue—Circle.	American Paving & Cont. Co., Baltimore, Md.
	Be-9	Liberty Heights Avenue—Grading.	Middleton, Thompson Co., Baltimore, Md.
	Be-10	Cromwell Street—Hanover Street—Light Street.	P. Reddington & Sons, Baltimore, Md.
	Be-11	Hanover Street—Winder Street—Cross Street.	P. Flanagan & Sons, Baltimore, Md.
	Be-13	Liberty Road—Garrison Avenue—City Limits.	P. Flanagan & Sons, Baltimore, Md.
	Be-14 A	Hanover Street—Cross Street—Lee Street.	P. Flanagan & Sons, Baltimore, Md.
	Be-14 B	Hanover Street—Lee Street—Baltimore Street.	American Paving & Cont. Co., Baltimore, Md.
	Be-15	Light Street—Cromwell Street—Light Street Bridge.	P. Flanagan & Sons, Baltimore, Md.
	Be-16	Reisterstown Road, Park Circle—City Limits.	P. Flanagan & Sons, Baltimore, Md.
	Be-16 S	Reisterstown Road, Storm Water Drains.	Smith & Ruggles, Baltimore, Md.
	Be-17-1 & 2	Hanover Street Bridge.	H. P. Converse & Co., Boston, Mass.
	Be-17-3	Hanover Street Bridge.	West Construction Co., Baltimore, Md.
	Be-17-4	Hanover Street Bridge.	Strobel Steel Contracting Co., Chicago, Ill.
	Be-17-7 & 8	Hanover Street Bridge.	McLean Contracting Co., Baltimore, Md.
	Be-17-9 S	Hanover Street Bridge.	H. O. Effor, Baltimore, Md.
	Be-20	Hanover Street Bridge Fill.	Smith & Ruggles, Baltimore, Md.
	Be-21	Hanover Street Bridge Fill.	Luck Construction Co., Roanoke, Va.
	Be-22	Hanover Street Bridge (Dredging).	H. P. Converse & Co., Boston, Mass.
	Be-18	Liberty Street—Baltimore Street—Centre Street.	Maryland Dredging & Contracting Co., Balto., Md.
	Be-18 A	Cathedral Street—Centre Street—Mt. Royal Avenue.	P. Flanagan & Sons, Baltimore, Md.
	Be-8-2	Reisterstown Road.	American Paving & Cont. Co., Baltimore, Md.
	Be-12	Park Heights Avenue.	P. Flanagan & Sons, Baltimore, Md.
	Be-17-6	Hanover Street Bridge (Paving).	P. Flanagan & Sons, Baltimore, Md.

ROSTER OF EMPLOYEES OF STATE ROADS COMMISSION

ADMINISTRATION AND LEGAL

NAME	POSITION
F. H. Zouck.....	Assistant to Chairman
Leon E. Greenbaum..	Counsel
Wm. L. Marcy.....	Secretary
E. T. Lewis.....	Bookkeeper
E. F. Appel.....	Assistant Bookkeeper
Thomas D. Fisher....	Assistant Bookkeeper
James Grimsley	Assistant Bookkeeper
H. C. McAvoy.....	Assistant Purchasing Agent
J. A. Henning.....	Stenographer
C. M. Schad.....	Stenographer
Lillian Shipley	Stenographer

ENGINEERING DEPARTMENT

NAME	POSITION
H. G. Shirley.....	Chief Engineer
B. P. Harrison.....	Assistant Engineer
G. Applegarth.....	Resident Engineer
W. F. Childs, Jr.....	Resident Engineer
L. T. Downey.....	Resident Engineer
Edwin Friese.....	Resident Engineer
C. S. Gale.....	Resident Engineer
R. W. Owens.....	Resident Engineer
C. A. Tenney.....	Resident Engineer
E. H. Wroe.....	Resident Engineer
A. F. Shure.....	Maintenance Engineer

OFFICE FORCE—ENGINEERING DEPARTMENT

NAME	POSITION
L. H. Steuart.....	Chief Clerk
E. A. Taylor.....	Clerk
R. C. Kingsley.....	Clerk
F. B. Hoffman.....	Clerk
F. A. Lucchesi.....	Clerk
R. W. Shipley.....	Clerk
E. Breckenridge.....	Clerk
P. M. Heisey.....	File Clerk
Charles Robins.....	Office Boy
H. Luthardt.....	Stenographer
J. C. Fitzgerald.....	Stenographer
Sarah Applestein....	Telephone Operator

INSPECTORS AND SUPERINTENDENTS

NAME	POSITION	CLASSIFICATION
H. R. Anderson.....	Inspector.....	"A-1"
H. S. Baker.....	Inspector.....	"A-1"
P. E. Burroughs.....	Inspector.....	"A-1"
J. M. Bailey.....	Inspector.....	"A"
J. B. Beall.....	Inspector.....	"A"
R. G. Browning.....	Bridge Inspector.....	"AA-1"
W. A. Bradley.....	Superintendent.....	"A-1"
W. M. Brown.....	Inspector.....	"B"
W. E. Carleton.....	Inspector.....	"B"
M. O. P. Coulling....	Inspector.....	"A"
H. G. Campbell.....	Inspector.....	"B"
D. P. Campbell.....	Inspector.....	"A-1"
E. C. Crouch.....	Inspector.....	"A-1"
J. L. Carr.....	Inspector.....	"A-1"
G. C. Day.....	Inspector.....	"A"
J. O'K. Downey.....	Inspector.....	"A-1"
L. T. Dunnock.....	Permit Inspector.....	"C"
H. J. DiNola.....	Superintendent.....	"A-1"
K. J. Eisenhardt.....	Inspector.....	"B"
W. G. Fay.....	Inspector.....	"B"
A. M. Fort.....	Inspector.....	"C"
T. J. Gaffney.....	Inspector.....	"A"
R. E. Greenlee.....	Inspector.....	"A-1"
H. E. Gosnell.....	Inspector.....	"C"
W. E. Hawkins.....	Inspector.....	"A-1"
D. A. Hannaman.....	Inspector.....	"A-1"
J. N. Heile.....	Inspector.....	"B"
P. R. Harrison.....	Inspector.....	"A-1"
H. H. Hanna.....	Inspector.....	"B"
W. F. Knell.....	Inspector.....	"B"
E. W. Krummel.....	Inspector.....	"A"
J. B. Logan.....	Inspector.....	"A-1"
T. M. Linthicum.....	Inspector.....	"A-1"
G. L. Martin.....	Inspector.....	"A"
H. S. Magruder.....	Inspector.....	"A"
R. I. Mount.....	Inspector.....	"A"
W. McLaughlin, Jr....	Inspector.....	"C"
P. A. Morison.....	Inspector.....	"A-1"
J. R. Malone, Jr.....	Inspector.....	"A-1"
J. P. McMakin.....	Inspector.....	"A-1"

NAME	POSITION	CLASSIFICATION
G. F. Maynard.....	Inspector.....	"A-1"
F. A. Nickols.....	Inspector.....	"B"
G. Parker.....	Inspector.....	"B"
J. M. Page.....	Inspector.....	"A-1"
H. F. Robb.....	Inspector.....	"B"
D. H. Reynolds.....	Inspector.....	"B"
E. T. Russell.....	Inspector.....	"A"
J. A. Reynolds.....	Inspector.....	"A"
C. C. Reynolds.....	Inspector.....	"A-1"
A. Richardson.....	Inspector.....	"A"
R. M. Reindollar.....	Inspector.....	"A"
W. D. Somervell.....	Inspector.....	"A-1"
W. H. Stevens.....	Inspector.....	"A-1"
E. R. P. Smith.....	Inspector.....	"A"
C. M. Smith.....	Inspector.....	"A"
O. C. Sima.....	Inspector.....	"A-1"
G. H. Shure.....	Inspector.....	"A"
J. T. Stewart, Jr.....	Inspector.....	"A"
R. T. Thayer.....	Inspector.....	"A"
O. Travers.....	Inspector.....	"B"
E. S. Thompson.....	Inspector.....	"A-1"
J. A. Valentine.....	Inspector.....	"B"
R. A. Wagner.....	Inspector.....	"A-1"
R. L. Wilkes.....	Inspector.....	"A-1"
F. I. Wheeler, Jr.....	Inspector.....	"A-1"
L. K. Whitcraft.....	Inspector.....	"A-1"

SURVEYING AND DRAFTING DEPARTMENTS

NAME	POSITION
J. N. Mackall.....	Engineer of Surveys
N. L. Smith.....	Chief Draftsman
W. Shultz.....	Bridge Designer
H. H. Allen.....	Bridge Designer
H. C. Andrews, Jr....	Draftsman
W. Armour.....	Draftsman
A. A. Borgealt.....	Draftsman
D. C. Creamer.....	Draftsman
D. Frames.....	Draftsman
L. A. Kahn.....	Draftsman
C. E. Leimbach.....	Draftsman
W. J. Parrott.....	Draftsman

NAME	POSITION
L. Rosenbrock.....	Draftsman
W. O. Robins.....	Draftsman
A. M. Weston.....	Draftsman
F. C. Worden.....	Draftsman
H. Phelps.....	Office Boy
G. O'Brien.....	Blue Print Boy
T. A. Ward.....	Chief of Party
L. E. Major.....	Chief of Party
J. E. Bryan.....	Chief of Party
E. St. C. Maxwell....	Instrument Man
W. A. Friend.....	Instrument Man
W. V. Bryan.....	Instrument Man
K. F. Buck.....	Rodman
W. N. Dunning.....	Rodman
E. R. Wolf.....	Rodman
F. Yellott.....	Rodman
F. C. Rossel.....	Tester
Helen M. Riley.....	Stenographer
E. A. Bemis.....	Chemist
H. L. Twigg.....	Cement Inspector

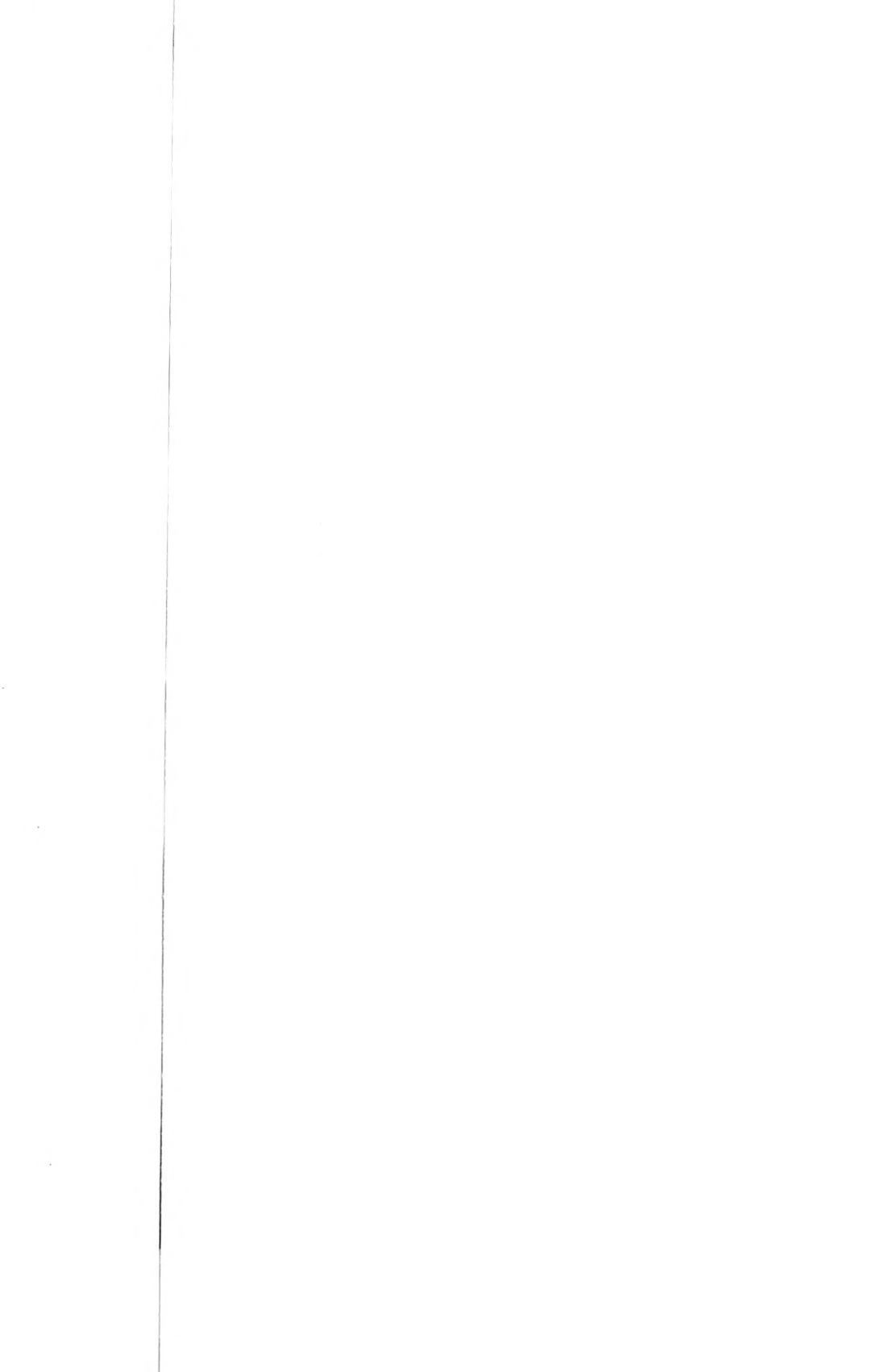
EMPLOYEES OF STATE ROADS COMMISSION WHOSE SERVICES HAVE BEEN SATISFACTORY, WHO HAVE RESIGNED OR WERE LAID OFF ON ACCOUNT OF THE PRACTICAL COMPLETION OF THE MAIN ARTERIAL SYSTEM.

NAME	POSITION	CLASSIFICATION
E. F. Johnson.....	Assistant Bookkeeper	
E. F. Ruggles.....	Assistant Engineer	
P. B. Thomas.....	Clerk	
Grace E. Bull.....	Telephone Operator	
Harold Andrew.....	Inspector.....	"B"
Roland Bates.....	Inspector.....	"C"
H. T. Bennett.....	Inspector.....	"C"
J. L. Burris.....	Inspector.....	"C"
L. A. Brodie.....	Inspector.....	"B"
W. B. Clemmitt.....	Inspector.....	"B"
M. S. DeHuff.....	Inspector.....	"B"
A. G. Day.....	Inspector.....	"B"
E. G. Duncan.....	Inspector.....	"B"
W. F. Day.....	Inspector.....	"B"
H. E. Elliott.....	Inspector.....	"B"
R. H. Fisher.....	Inspector.....	"A"
W. A. Grierson.....	Superintendent.....	"A-1"
James P. Griffin.....	Inspector.....	"C"
W. B. Hull.....	Inspector.....	"B"
Locksley Hanes.....	Inspector.....	"B"
D. C. Harrison.....	Inspector.....	"B"
P. Herman.....	Inspector.....	"C"
G. M. Hall.....	Inspector.....	"B"
C. W. Ilgenfritz.....	Inspector.....	"C"
G. W. Joy, Jr.....	Inspector.....	"C"
H. W. Kaylor.....	Superintendent.....	"AA-1"
J. W. Lockwood, Jr..	Inspector.....	"B"
C. E. Loos.....	Inspector.....	"C"
W. D. LeFevre.....	Inspector.....	"C"
W. E. McComas, Jr..	Inspector.....	"C"
J. N. Major.....	Inspector.....	"A"
B. B. Nicoll.....	Inspector.....	"B"
George J. Price.....	Superintendent.....	"A"
J. W. Rehill.....	Superintendent.....	"A-1"
H. F. Ringeling.....	Inspector.....	"A"

NAME	POSITION	CLASSIFICATION
C. Rosenbrock.....	Inspector.....	"C"
H. L. Reubsam.....	Inspector.....	"B"
P. B. Shipley.....	Inspector.....	"B"
A. E. Sima.....	Inspector.....	"B"
F. W. Truitt.....	Inspector.....	"B"
James Wallace.....	Inspector.....	"C"
Roger Williams.....	Inspector.....	"B"
W. S. Weller.....	Inspector.....	"C"
J. H. Withgott.....	Inspector.....	"B"
J. E. Waters.....	Inspector.....	"B"
H. W. Yellott.....	Inspector.....	"B"
C. H. Brown.....	Inspector.....	"C"
E. L. Bowen.....	Inspector.....	"B"
W. F. Brock.....	Inspector.....	"C"
G. W. Brown.....	Inspector.....	"C"
S. R. Brewer.....	Inspector.....	"B"
J. G. Bode.....	Inspector.....	"C"
J. A. Blondell.....	Bookkeeper	
H. E. Blair.....	Inspector.....	"C"
R. P. Curry.....	Inspector.....	"C"
M. K. Diffenderffer...	Inspector.....	"C"
W. A. DeHuff.....	Inspector.....	"A"
C. E. Dean.....	Inspector.....	"B"
R. F. Gaddis.....	Inspector.....	"C"
F. M. Hildebrandt....	Inspector.....	"A"
E. M. Hines.....	Inspector.....	"C"
A. V. Horner.....	Inspector.....	"C"
J. Q. A. Holloway....	Inspector.....	"A"
H. J. Horn.....	Inspector.....	"B"
F. C. Irelan.....	Inspector.....	"C"
H. R. Kelly.....	Inspector.....	"B"
E. E. Kaiser.....	Inspector.....	"C"
H. B. Krauss.....	Inspector.....	"C"
F. H. Kelly.....	Inspector.....	"C"
J. K. Kearney.....	Inspector.....	"C"
O. V. Linhardt.....	Inspector.....	"C"
S. M. Lowery.....	Inspector.....	"C"
D. Linville.....	Inspector.....	"C"
W. F. Lankford.....	Inspector.....	"A"
L. B. Miller.....	Inspector.....	"C"
Walter Mason.....	Inspector.....	"C"

NAME	POSITION	CLASSIFICATION
A. W. Morton.....	Inspector.....	"C"
E. J. Owens, Jr.....	Inspector.....	"C"
E. H. Prince.....	Inspector.....	"C"
V. F. Robey.....	Inspector.....	"C"
J. M. Regan.....	Inspector.....	"C"
J. E. Shultz.....	Inspector.....	"A"
H. J. Schad.....	Inspector.....	"C"
J. A. Schad.....	Inspector.....	"C"
F. H. Sasscer.....	Inspector.....	"C"
H. Shapiro.....	Inspector.....	"C"
S. H. Showell.....	Inspector.....	"C"
T. F. Stein.....	Inspector.....	"C"
G. C. Slagle.....	Inspector.....	"C"
E. G. Todd.....	Inspector.....	"C"
J. M. Thompson.....	Inspector.....	"C"
J. V. Thomas.....	Inspector.....	"C"
L. R. Vickers.....	Inspector.....	"C"
R. C. Ward.....	Inspector.....	"C"
G. D. Wiltshire.....	Inspector.....	"C"
C. B. Watkins.....	Inspector.....	"C"
A. C. Wilson.....	Inspector.....	"C"
H. Woodward.....	Inspector.....	"B"
W. C. Wroe.....	Inspector.....	"C"
W. P. Zimmerman....	Inspector.....	"C"
A. C. Betz.....	Draftsman	
G. A. Clark.....	Draftsman	
J. O. B. Coulling.....	Draftsman	
W. L. Jardella.....	Draftsman	
J. K. McGrath.....	Chief Draftsman	
J. P. White.....	Bridge Draftsman	
J. E. Murphy.....	Rodman	
W. U. Cross.....	Instrument Man	
C. R. Whitaker.....	Chief of Party	
G. C. Sykes.....	Chief of Party	
E. C. Graham.....	Chief of Party	
H. M. Sumwalt.....	Draftsman	
H. A. Rau.....	Draftsman	
J. R. Ewell.....	Draftsman	
W. Grace.....	Rodman	
J. M. Ledmun.....	Rodman	
E. R. Pyles.....	Draftsman	

NAME	POSITION
H. Pieper.....	Draftsman
J. M. Brooks.....	Machinist
C. E. Keefer.....	Draftsman
E. R. Seifler.....	Draftsman
J. M. Comegys.....	Rodman
W. E. Mercer.....	Rodman
F. M. Kipp, Jr.....	Draftsman
W. H. Moore.....	Rodman
A. B. Smith.....	Rodman
J. G. Baurenschmidt..	Draftsman
M. G. Talbot.....	Draftsman
J. A. Burnette.....	Draftsman
J. A. Garey.....	Rodman
C. Weiss.....	Draftsman
C. R. Buckley.....	Cement Inspector
F. M. Gittings.....	Rodman
C. H. Reisinger.....	Draftsman
C. S. Hooper.....	Cement Inspector
W. H. McAvoy.....	Draftsman
T. Lurman.....	Cement Inspector
F. L. Greiner.....	Draftsman
W. C. Hopkins.....	Draftsman
W. F. Moore.....	Rodman
E. Woods, Jr.....	Office Boy
C. W. Chesley.....	Rodman
G. W. Baurenschmidt.	Rodman
J. T. Bartlett.....	Rodman
W. H. Slade.....	Rodman
J. H. Crampton.....	Draftsman
R. L. Christian.....	Draftsman
G. C. Kerr.....	Rodman
F. S. Deekens.....	Rodman
B. H. Cavalier.....	Rodman
H. Dawkins.....	Rodman
S. J. Rowe.....	Cement Inspector
H. D. Worthington...	Cement Inspector



MAP OF MARYLAND SHOWING STATE ROAD SYSTEM

COMMISSION:
GOVERNOR P. L. GOLDSBOROUGH
O. E. WELLER, Chairman THOMAS PARRAN
W. B. MILLER JOHN M. PERRY
ANDREW RAMSAY J. FRANK SMITH
HENRY G. SHIRLEY, Chief Engineer

LEGEND
—— Roads Completed and Under Contract
- - - Roads Uncompleted

SCALE 20 Miles = 1 inch
1915

BASE MAP PREPARED BY
MARYLAND GEOLOGICAL SURVEY

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